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# 1941 YEARBOOK

PARK AND RECREATION PROGRESS

Clemson University



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1941

# YEARBOOK

PARK AND RECREATION PROGRESS


UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE



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# PARKS AND THE NATIONAL CHARACTER

THE IMPORTANCE of parks and recreation, in times of national crisis, can scarcely be overstressed. The real first line of defense lies in the soul of a people, and is anchored deeply in the land. In times of stress men and women draw peace, understanding and strength from the hills, the forests, the waterways—places where quiet abounds.

If there are any among us today, particularly among our young people, who have become so confused by tragic world events that they are beginning to doubt the democratic way, let them go into our parks. There let them witness the wonders of nature at dawn, at high noon, at sunset, and in the twilight. Let them lose themselves awhile, and, forgetting man's inhumanity to man, slough off worries and cares. Let their carefree minds and open hearts learn to know, through contact with nature, their great country as it is portrayed in the parks—strong, beautiful and free. Surely then doubt, bewilderment and cynicism will give way to a deeper understanding and devotion to America and our democratic processes.

The development of a strong national character is equally as important as is the building of ships, planes and guns. And the parks of our country are properly the training grounds for this phase of our national defense.

*Harold L. Ickes*

*Secretary of the Interior.*



# INTRODUCTION

THIS FOURTH ISSUE of the Yearbook is dedicated, like the others, to bringing together in one volume the current views of the leaders in the field of parks and recreation on whatever subjects they wish to present.

If good knowledge is imparted and discussions grow out of what has been written, the book will have served its purpose well, and the people, through their Government, will have made another lasting contribution toward the protection and enjoyment of their country.

NEWTON B. DRURY,  
*Director, National Park Service.*



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Opinions expressed in articles contained in this Yearbook are those of the authors and are not necessarily concurred in by the Department of the Interior.

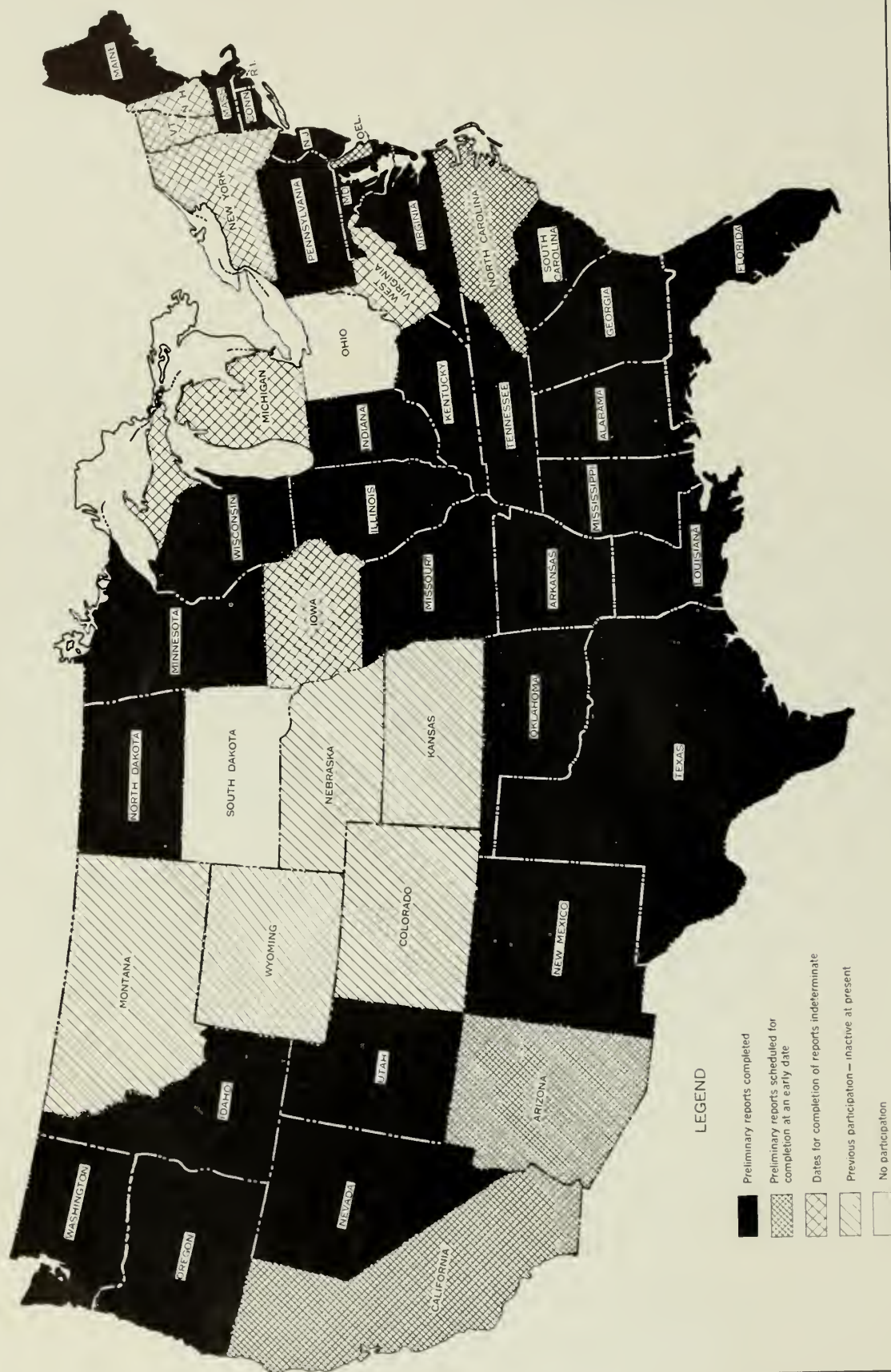


# THE PARK, PARKWAY, AND RECREATIONAL-AREA STUDY

## STATUS OF STATE COOPERATION AND COMPLETION OF PRELIMINARY REPORTS

SEPTEMBER 30, 1940

DEPARTMENT OF THE INTERIOR



# THE YEAR'S PROGRESS

Compiled by FANNING HEARON, Associate Recreational Planner, National Park Service

SEVENTY-SEVEN YEARS AGO the Congress of the United States, by the act of June 30, 1864, first gave official recognition to the need for public recreational facilities by granting to the State of California the famed Yosemite Valley "to be held for public use, resort and recreation." Sixty-nine years ago, in 1872, the Congress furthered this official recognition by passing the bill of Representative William Claiborne of Montana for the establishment of Yellowstone National Park, the first such area in the great system of today, and the world's first national park.

In the 77th year of the movement for the providing of public recreation areas on State properties and the 69th year of the movement for the provision of public recreation areas on Federal property, there has been important progress. In the national field 1940 will be remembered as the year in which 60 years of effort culminated in the establishment of Kings Canyon National Park in California's High Sierras. Thus were fulfilled the long dreams of men like John Muir, whose sensitive pen first gave the great Canyon a national audience in *Century* magazine in 1891. Also significant in 1940 was the creation of Isle Royale National Park in the northern waters of Lake Superior.

In addition to these national parks, four other new areas were established: Whitman National Monument in Washington, Appomattox Courthouse National Historical Monument in Virginia, Manassas National Battlefield Park in Virginia, and the Vanderbilt Mansion National Historic Site in New York. These six new areas added approximately 737,000 acres to the national system under supervision of the National Park Service. As these areas were brought into the system several other projects neared consummation and the boundaries of a number of existing areas were adjusted to facilitate good administration and preserve lands of national park caliber.

In the field of Federal, State, and local cooperation in the planning and development of State and local parks and recreation areas the year was marked by the completion of preliminary State-wide plans and programs of recreational facilities and needs in 8 more States, bringing the completed total to 31, and the beginning of a regional study of such facilities and needs in the South-Central States. Thus, the effective cooperation of Federal, State, and local authorities under the provisions of the Park, Parkway and Recreation Study Act of 1936 continued to be the major factor in the planning of recreational facilities on these State and local areas. To report on this cooperative progress the National Park Service is publishing *A Study of the National Recreation Problem*. This, the first publication of its kind, is covered in another article in this Yearbook.

This public accounting of what has been accomplished

will show that, since 1933, when the "emergency" activities of the Federal Government provided considerable manpower and funds, the number of State parks in the country has increased from 816 to 1,527; that the acreage of these areas (exclusive of the Adirondack and Catskill parks which comprise the New York State Forest Preserve) has grown from 965,057 to 1,633,171; and that attendance has increased from 61,297,000 in 1933 to 96,831,000 in 1940. State expenditures, according to the report, have climbed from \$5,949,235 in 1933-34 to \$7,858,313 in 1938-39.

Most important Federal aid in the planning and development of State and local areas came from Civilian Conservation Corps and Emergency Relief appropriations. During the fiscal year from July 1939 through June 1940 National Park Service alone invested \$6,512,933 of CCC funds in State, county and metropolitan areas in 44 States, Hawaii and the Virgin Islands. Included in these States are all except Connecticut, Delaware, Nebraska, and Nevada. In 15 States the Service put \$591,864 of CCC funds into federally owned recreational demonstration areas, and in 20 States this same type of area received \$2,501,405 from emergency relief appropriations through National Park Service expenditures. CCC funds amounting to \$3,542,566 and ERA funds totaling \$5,201,397 were invested by the Park Service in the development of such Federal areas as national parks, national monuments, battlefield parks, historical parks, historic sites, military parks, parkways and the recreational demonstration areas.

These investments made through the National Park Service do not include the funds spent by the Army in maintaining the CCC camps, nor funds expended by the Work Projects Administration in maintaining its work units engaged on work programs supervised by the Park Service. Totalling these three types of expenditures it seems that approximately \$150,000,000 in Federal funds was invested in National, State, and local areas in the fiscal year ending June 30, 1940.

## *The National System*

The Kings Canyon National Park mentioned earlier in this compilation of progress, is world famed as a superb high mountain wilderness. It is a wild region of massive peaks, glacial cirques and lake-dotted plateaus from 10,000 to 14,000 feet above sea level. Its dominant features are the enormous canyons of the Middle and South Forks of the Kings River, whose walls rise on both sides from 3,000 to 5,000 feet above the valley floors. The act of March 4, 1940, establishing the Kings Canyon National Park abolished the General Grant National Park, and included its 2,536 acres in the new park as the General Grant Grove



Section. The same act authorized the President to add the Redwood Mountain area with its grove of big trees (*Sequoia gigantea*). This grove, then privately owned, contains over 7,000 sequoias, and is one of the most diversified and largest sequoia groves in existence. Following its purchase by the Federal Government, the President, on June 21, made the grove and adjoining lands, aggregating approximately 10,000 acres, part of the General Grant Grove Section. With this addition, the Kings Canyon National Park contains 454,600 acres.

In fixing the park's boundaries, Congress did not include the Tehipite and Cedar Grove areas, since their lands had been withdrawn for possible reclamation dam and reservoir projects. These areas had been an important part of the various park proposals because of the Tehipite's outstanding scenery and the Cedar Grove's recreational possibilities. On August 15, 1940, however, the United States Forest Service turned over to the National Park Service the administrative jurisdiction of the Cedar Grove area, which leads into the Canyon of the South Fork of the Kings River and is the gateway to the park's main western entrance. Here ends the recently constructed State highway—the only highway leading directly into the park.

The Isle Royale National Park in Michigan was established on April 3, 1940, when the Secretary of the Interior accepted the deed to the last of the lands within the prescribed park boundaries, aggregating 133,662 acres. Located in the northwestern part of Lake Superior, about 60 miles from the Michigan mainland, and 20 miles from the Canadian shore, the new park is an outstanding wilderness area. Isle Royale proper, which is without year-round inhabitants, is 44 miles long and has a maximum width of about 9 miles. Surrounding the main island are scores of islets, which are included within the park boundaries. Towards establishing the park, the State of Michigan appropriated \$100,000 for the purchase of lands, and, in addition, donated approximately 3,000 acres of State-owned lands.

The Whitman National Monument, also mentioned earlier, is a memorial to the heroism of Marcus Whitman, the first medical missionary on the Pacific coast, and to his wife, Narcissa. On this site on the Walla Walla River, the Whitmans in 1836 established the Waiilatpu Indian mission and school and ministered to the Indians until they were massacred with 12 others in 1847. The lands were donated by Whitman Centennial, Inc., and by the Walla Walla Foundation. The area, which includes about 45 acres, was established on January 20, 1940.

The Appomattox Courthouse National Historical Monument commemorates the termination of the War between the States. Here on April 9, 1865, the Army under Gen. Robert E. Lee surrendered to Lt. Gen. U. S. Grant. The development plan calls for the restoration of the McLean or "Surrender House" as of 1865 and of other key structures identified with the surrender scene. This area, established on April 10, 1940, comprises 970 acres.

Another outstanding site of the War between the States, added during 1940, is the Manassas National Battlefield Park, Virginia, of approximately 1,604 acres, so designated on May 10, 1940, by the Secretary of the Interior under the provisions of the Historic Sites Act of August 21, 1935. The greater part of the battlefield part consists of lands embraced in the former Bull Run Recreational Demonstration Area. Here were fought the first and second battles of Manassas (Bull Run) in 1861 and 1862. The former was the first great battle of the War between the States in the East, and the latter, one of the most important in point of the numbers involved and casualties suffered. The program recommended for the battlefield involves the restoration of the area covered by the military operations to the condition existing at the time of the battles. For this purpose only the more important sites have been acquired. Lands which were in cultivation then are to be left undisturbed. The Interior Department Appropriation Act for 1940 contained an item of \$56,000 for the construction of an administration-museum building in this park.

Representative of a significant phase of American social, economic, and cultural history is the Vanderbilt Mansion National Historic Site of approximately 211 acres, in Dutchess County, New York. This luxurious mansion, standing on an eminence overlooking the Hudson River, was completed about 1898 for Frederick W. Vanderbilt, who retained it until his death in 1938. It was then inherited by his niece, Mrs. Margaret Louise Van Alen, who deeded the house and grounds to the United States Government as a memorial to her uncle. The grounds with fine old trees and spreading lawns have been maintained as a country estate since colonial days.

On June 3, 1940, the President by Executive order, transferred the Custer Battlefield National Cemetery, Montana, from the War Department to the National Park Service. The order became effective July 1. The cemetery, approximately one mile square in extent, is the site of the famous battle of the Little Big Horn River in which Lt. Col. George A. Custer and his command of 264 officers and men were annihilated by the Sioux Indians in the historic battle of June 25, 1876. A granite monument marks the hill on which Custer made his great last stand.

By the act of August 13, 1940, the Chopawamsic Recreational Demonstration Area located in Prince William and Stafford Counties, near Dumfries, Va., was made part of the National Capital Park System. This area now embracing 14,080 acres, also is one of the Recreational Demonstration Areas acquired by the National Park Service under the Federal Land Use Program. Because of the lack of camping and recreational facilities in the National Capital, the development of the Chopawamsic area was endorsed by the social agencies of Washington and various organizations dealing with youth. Located within 35 miles of Washington, it is used chiefly for organized camping throughout the year by a number of public and social agencies. During the calendar year 1939, the limited facilities were used by

18 separate organizations for a total of 31,257 camper-days.

The historical and highly scenic Cumberland Gap area in Tennessee, Kentucky, and Virginia was authorized by the act of June 11, 1940, as the Cumberland Gap National Historical Park project. The act provides that the maximum area shall not exceed 50,000 acres, and that no Federal money shall be appropriated for the purchase of the lands. The Cumberland Gap is of prime historical importance as the connecting link between the Middle Atlantic States and the territory west of the Appalachian Mountains. Long before the coming of the white man, the trail through the Gap, the Warrior's Path, was one of the principal Indian routes. Along this trail, which later became known as the Wilderness Road, Daniel Boone laid out the route which was used by the pioneers migrating westward. Subsequently, the pass became a great national gateway through which flowed the travel and transportation of a rapidly developing nation. Still later, during the War between the States, the area because of its strategic importance, was the object of several struggles between Federal and Confederate forces.

An organization known as the Cumberland Gap National Historical Park Association, composed of representatives of the three States in which the proposed national historical park is located, has been formed to assist in the acquisition of the necessary lands. The legislature of Virginia has appropriated \$5,000 to assist in the acquisition of the lands within that State.

Among the more important adjustments made during the last year in the boundaries of existing areas were those of the Olympic National Park, Washington, the Black Canyon of the Gunnison National Monument, Colorado, the Grand Canyon National Monument, Arizona, and the Kings Mountain National Military Park, South Carolina.

In establishing the Olympic National Park of 648,000 acres on June 29, 1938, Congress authorized the President, by proclamation, to enlarge its area to a maximum of 898,292 acres. On January 2, 1940, the President added 187,411 acres to the park, bringing within its boundaries portions of the famous "Rain Forest" on the west side of the park, the "Seattle Skyline" of high peaks on the east, and the north shore of beautiful Lake Quinault; and affording protection to the mountain slopes north and west of Lake Crescent.

The Black Canyon of the Gunnison is one of the most spectacular gorges in the United States. Within the area the gorge varies from 1,725 to 2,724 feet in depth, from top widths of 1,000 to 2,500 feet and from bottom widths of 40 feet (The Narrows) to 300 feet between its precipitous walls. Approximately 2,770 acres were added to this national monument by Presidential proclamation of October 28, 1939, in order to provide for the proper protection and management of the area and its objects of scientific interest.

On April 6, 1940, the President, by proclamation, reduced the area of the Grand Canyon National Monument from

273,145 to 201,291 acres. The acreage excluded was returned to the public domain for administration by the Grazing Service.

Congress on June 29, 1940, changed the name of the Cape Hatteras National Seashore project in North Carolina to Cape Hatteras National Seashore Recreational Area project. The act also provides that hunting shall be permitted within certain portions of the area under such rules and regulations as may be prescribed by the Secretary of the Interior in conformity with the Migratory Bird Treaty Act of July 3, 1918. In authorizing this project in 1937, Congress made its establishment contingent upon the donation of the lands within the proposed boundaries, aggregating approximately 62,500 acres. In 1939 the State of North Carolina authorized the establishment of the Cape Hatteras National Seashore Commission to direct the land acquisition program and provided \$20,000 for its expenses during the following two years.

In authorizing the Kings Mountain National Battlefield Park, South Carolina, Congress provided that it should include the battleground and such adjacent lands as were necessary to commemorate the historic battle there between the American and British forces on October 7, 1780. For several years the park consisted of a tract of approximately 40 acres, which barely comprised the area involved in the final point of conflict between the opposing armies, and only a part of the area on which the day's battle was fought. On July 11, 1940, the park was enlarged to 4,012 acres to include all the battle positions and points of action, and the historic environs of the battle, such as the roads and trails used by both American and British forces in reaching and leaving the battlefield. This additional acreage was formerly part of the Kings Mountain Recreational Demonstration Area.

During 1940 marked progress was made toward the completion of a number of national projects in several parts of the country. Among these is the Saratoga National Historical Park project, comprising the scene of General Burgoyne's surrender in 1777, and a turning point in the American Revolution. On September 15, 1940, the attorney general of the State of New York forwarded deeds covering approximately 1,427 acres of State owned lands within the Saratoga Battlefield being donated for inclusion in the proposed park. There remain approximately 950 acres to be acquired before the park can be established. The 1941 Interior Department Appropriation Act made \$50,000 available for the purchase of such lands.

Established in 1917, the Kennesaw National Battlefield Site, Georgia, consists of a 60-acre tract, located on Chcat-ham's Hill, on which the most desperate action took place during the Battle of Kennesaw Mountain in the War between the States on June 27, 1864. However, that area includes only a small part of the terrain on which the battle was fought. In 1935 Congress authorized enlargement of the area, and a change in its status to a national battlefield park, when title to such lands in the vicinity of Kennesaw



Mountain as the Secretary of the Interior might designate were vested in the United States. The enlarged boundaries, aggregating approximately 3,000 acres, include a number of troop positions and fortifications necessary for an understanding of the battle. The extensive and well-preserved entrenchments are one of the most interesting features of the area. To date, approximately 2,591 acres within the proposed park boundaries have been acquired.

Another outstanding battlefield of the War between the States is the Monocacy National Military Park project near Frederick, Md. During the last year studies were made to determine the important sites, necessary to tell the story of the battle, on which suitable markers can be erected describing the action of the Confederate and Union forces here on July 9, 1864. A plan for the establishment and development of the park has been submitted to the Monocacy Battlefield Association, an organization of local citizens, who are interested in acquiring and donating the necessary lands.

The early establishment of the Andrew Johnson Homestead National Monument, Tennessee, and of the Patrick Henry National Monument, Virginia, is made possible by congressional appropriations voted during the year. For the purchase of the home of President Johnson, \$44,500 was made available; and for the acquisition of the Red Hill Estate, Patrick Henry's home, \$25,000.

The Blue Ridge Parkway, when completed, will connect the Shenandoah and Great Smoky Mountains National Parks by means of a 485-mile scenic road averaging 2,500 feet in elevation. Since construction was started in 1935, 304 miles have been completed or are under construction for grading and surfacing. A continuous paved unit of 140 miles is open to traffic between Adney Gap, Va., and Deep Gap, N. C. Another portion of the Roanoke-Asheville unit, 50 miles between Grandfather Mountain and Mount Mitchell, is graded and will be provided with hard surfacing this year. In Virginia existing funds and contractual authorization will provide for the grading of 107 miles between the south end of the Shenandoah Park and Black Horse Gap.

The Natchez Trace Parkway, a 454-mile project, will connect Nashville, Tenn. and Natchez, Miss. The parkway follows the general course of the old Natchez Trace, an old Indian trail and an important route in early American travel. Since the work was started in 1937, 85 miles have been completed or are under contract. Existing funds and contractual authorization will provide for the grading of 49 miles in Mississippi, 10 miles in Tennessee, and 3 miles in Alabama, in addition to bridges on completed sections.

The Big Bend National Park project, Texas, of approximately 788,000 acres, comprises the last great wilderness of Texas—an area distinguished by its spectacular desert and mountain scenery, and scientific attractions. The proposed park will form the American section of an international park, crossing the Rio Grande River and linking the United

States with Mexico. The Mexican Government has signified its intention to establish a national park opposite Big Bend.

When authorizing this national park project, Congress provided that the area cannot be established as a national park until the lands have been donated to the United States. Towards acquiring these lands the legislature of Texas last year authorized the State Parks Board, which is charged with purchasing land for the park, to transfer the State-owned lands within the proposed national park to the Federal Government. These total approximately 113,000 acres to which title is vested in the State Parks Board. For the purpose of raising funds to purchase privately owned lands, the Texas Big Bend Park Association has been formed. Its Board of Directors includes some of the most prominent men in the State and representatives from every section of Texas. At a conference on September 19, 1940, with the members of the State Parks Board, the officials of the association formulated plans for inaugurating a public campaign to raise funds for the acquisition of park lands. The campaign will have the benefit of an enthusiastic press, for the Big Bend project is popular.

The Everglades National Park project, Florida, was authorized in 1934 by Congress, which made its establishment contingent upon the donation of the necessary lands, totaling 1,454,092 acres. The acquisition of this area would provide the first subtropical national park in continental United States, and would afford much needed protection to the area's rare plant and animal life. The State of Florida owns considerable lands within the proposed boundaries. Although there is strong sentiment in the State for early completion of the park, and the legislature of Florida has enacted a number of laws to facilitate its establishment, very little progress has been made. Governor-elect Holland recently expressed his great interest in the park and his desire to expedite the project.

The Escalante region in southeastern Utah, is one of the Nation's outstanding scenic, and at the same time, most inaccessible wilderness areas. It possesses great potential values for public recreation and education. The land consists of a narrow strip on both sides of the Green and Colorado Rivers from the vicinity of their junction near Moab, Utah, south to the Arizona State line. The Department of the Interior is at present collaborating with the agencies concerned in studies for the development of the Colorado River Basin. As a part of these basin studies, there is being formulated a broad planning program that will permit the conservation and development of the Escalante's recreational values along with the legitimate development of any water and power and other resources.

The proposed Manuelito National Monument, New Mexico and Arizona, of approximately 30,000 acres will feature extensive ruins of an ancient civilization. The major portion of the proposed area is in New Mexico along United States Highway No. 66. The State of New Mexico has appropriated \$12,000 for the purchase of private lands



for donation to the Federal Government, and has indicated that it will exchange State land in the area, amounting to approximately 2,800 acres, for other public lands within the State.

The proposed Ship Island National Monument, located in the Gulf of Mexico, near Gulfport and Biloxi, Miss., offers a unique opportunity to depict a long series of historical events, including the story of the first French settlement of Louisiana, the British descent on New Orleans in 1814-15, and the War between the States. Fort Massachusetts on its western end was begun in 1845 and completed after Union forces occupied the island in 1861. The fort is in a good state of preservation. The island is capable of being developed to provide much needed seashore recreational facilities. The major portion of Ship Island, including the fort, is the property of the Joe Graham Post of the American Legion in Gulfport. This post has indicated its willingness to donate its holdings to the United States for national monument purposes.

In the field of physical development, designs were completed for 26 major road of parkway structures for Acadia and Great Smoky Mountains National Parks, Colonial National Historical Park, and the Blue Ridge and Natchez Trace parkways. Plans were prepared for the complete architectural and landscape treatment of the Statue of Liberty and of a memorial airport at Kill Devil Hill National Memorial, North Carolina. Also completed were designs for concrete arch bridges in Great Smoky and in Shiloh National Military Park, Tennessee; a railway underpass at Ocmulgee National Monument, Georgia; and docks and wharves at Fort Jefferson National Monument, Florida. Master development plans were initiated for Appomattox National Historical Monument, Virginia; and for Saratoga National Historical Park project, New York; Santa Rosa Island National Monument, Florida; and Cape Hatteras National Seashore Recreational Area project, North Carolina. Meanwhile, new progress was recorded by the Historic American Buildings Survey, especially in the Southeastern States, through application of funds provided by the Public Works Administration.

Important archeological operations were in progress at Ocmulgee National Monument, and hundreds of thousands of artifacts already recovered there were treated and studied. A considerable body of data relating to the early English settlement was found at Jamestown Island, in Colonial National Historical Park, and new evidences of old structural features were discovered at Fort Marion and Fort Matanzas National Monuments, Florida. There was good progress in the restoration of the 18th century blast furnace at Hopewell Village National Historic Site, Pennsylvania, and in major historical renovations at the Jacob Ford Mansion, "Washington's Headquarters," at Morristown National Historical Park, New Jersey. Restorative and preservative treatment also was under way in the Hawks, Derby, and Customhouses at Salem Maritime National Historic Site, Massachusetts. Preliminary devel-

opmental activities were begun at Saratoga National Battlefield Park project, New York. The work on this area centers on the removal of nonhistoric features which research studies have shown were not present in 1777 during the battles of Freeman's Farm and Bemis Heights.

Negotiations were completed with the United States Army leading to the transfer to the National Park Service of more than 100 pieces of ordnance of the period of the War between the States. The cannon have been assembled at Petersburg National Military Park, Virginia, for eventual interpretative display.

#### *Park, Parkway, and Recreational Area Study*

As indicated earlier in this article, 1940 witnessed the completion of preliminary surveys of recreational facilities and needs in eight more States. These were: Arkansas, Florida, Maine, Maryland, Massachusetts, New Mexico, Texas, and Washington. Thirty-one of these State reports have been completed. After the completion of these studies many of the States have continued work on phases of the study which will assist in developing a more comprehensive and integrated park and recreation program. This follow-up work includes detailed research on such subjects as recreational resources, organized camping, historic and archeologic sites, existing and potential recreational areas, parkways, trailways, the determination of recreational needs, legislation and various aspects of administration, finance and use. Special reports on organized camping have been completed in California, Georgia, Oregon, and Rhode Island. A special report on an historical study has been completed in Alabama and several special historical reports have been completed in Mississippi.

During the preparation of individual State recreation plans it became evident that the solution of certain problems necessitated consideration of factors beyond State boundaries. In planning for any State it is important that due cognizance be taken of nearby facilities in adjoining States that may be used by its residents and vice versa. It is important also that outstanding recreational resources, such as mountains and bodies of water, be considered from a regional perspective. As an initial step in this phase of the work the National Park Service is cooperating with other Federal agencies and States concerned in making a study of the Central Southeastern Region which embraces the Tennessee and Cumberland Watersheds and the surrounding area affected by them. It is believed that this study will help the State and Federal agencies to adjust their individual programs to effect the proper coordination. A similar study is to be undertaken in New England during the coming year.

Most water control projects for irrigation, power, flood control and navigation have been undertaken with little or no planning for recreational use. In many instances when the dams have been completed and the water impounded, public access has been found to be difficult or otherwise unsatisfactory and recreational facilities have

been virtually nonexistent. Remedial action at such a time is both costly and difficult. It is gratifying to note, however, that recreation is receiving increased recognition in the planning for such projects. During the last year the National Park Service has been requested to assist and advise in planning for the recreational use of several of them. Five thousand dollars was made available to the Service to make a long range plan for the recreational use of the four reservoirs developed on the lower Colorado River near Austin, Tex. In connection with the Grand Coulee reclamation project in the State of Washington the Service has been given the responsibility for studying the recreational potentialities of the reservoir and preparing a development program.

In March 1940 the collection of information for a park use study was inaugurated in national parks, national monuments and other areas under the jurisdiction of the Service to continue until February 28, 1941. The purpose of the study is to obtain information from the various areas concerning the extent and kind of use being made of them. In addition, a fair sampling of the visitors to the areas is being interviewed to determine whether the areas are serving people of various income, vocational and other social groups in reasonably proportionate numbers and to measure the radius of influence of these areas. Through these interviews the Service also seeks to learn whether the visitors are being adequately served, and suggestions for improvement of the service are requested. Information of this kind will be valuable in the determination of administrative policies and in planning future development and programs.

Nature study, one of the activities for which extensive natural areas are particularly suitable, is growing in importance in all areas under the jurisdiction of the National Park Service. The State parks are likewise peculiarly adapted for nature study but in only relatively few instances has this activity been given serious consideration by State park authorities. For some time local park and recreation systems have been giving greatly increased attention to this activity, stimulated by such private agencies as the Garden Clubs of America and the National Recreation Association. The Service has inaugurated a study for the purpose of making available more complete information regarding nature activity programs conducted in parks, forests, and other public and private centers throughout the country. It is expected that a report will be prepared covering the programs of the various agencies which are conducted on a regular basis under qualified leadership.

In 1940 legislation was enacted in Louisiana and Mississippi authorizing participation in the proposed Mississippi River Parkway project. All the States bordering the Mississippi River except Tennessee have taken legislative action favoring the proposed parkway.

Bills to authorize a National Mississippi River Parkway were introduced in Congress in 1939.

The following publications now at the Government

Printing Office will be released during the coming year: *A Study of the National Recreation Problem*, *Digest of Laws Affecting County and Local Parks*, and *Park Use Studies and Demonstrations*.

#### *State, County and Local Parks*

Federal participation in the planning and development of recreational facilities in State, county and local parks continued in the four regions through which the National Park Service operates its field activities. State and Federal cooperation on these types of areas functions on a more stabilized basis each year and the results are evidence of this improvement.

In Region 1, headquarters Richmond, Va., comprising 23 States along the Atlantic seaboard, there were outstanding accomplishments during the year in several States. In Massachusetts general recreational developments continued at Mount Greylock State Reservation, Breakhart State Reservation, Mount Tom State Reservation, Roland C. Nickerson State Park, Pittsfield State Forest, Robinson State Park, Salisbury Beach Reservation, and October Mountain State Forest.

In New York extensive development programs continued at the three State parks bordering on Lake Ontario; Fair Haven Beach, Hamlin Beach and Selkirk Shores. These areas are heavily used and additional facilities are needed. New work was started in a section of Palisades Interstate Park near Cornwall, and at the important Buckhorn Island State Park near Niagara Falls the development program made good progress.

New Jersey's prominent projects were at High Point and Parvin State Parks, where camps have been working since the beginning of the Civilian Conservation Corps. In Maryland work was begun and half finished on a field house in the Maryland extension of Rock Creek Park in the National Capital Parks system; and the State exercised for the first time its right to condemn property for State park use when it acquired important water front acreage in Elk Neck State Park and Forest. On this acreage will be a bathhouse, beach and parking area development.

CCC camps in Virginia advanced long-time development programs on five State parks in the system: Douthat, Hungry Mother, Fairy Stone, Westmoreland, and Seashore. Outstanding in Georgia was the work at Kolomoki Mounds State Park, an important archeological area in the southwestern part of the State; and in Louisiana a prominent project during the year was at Tchefuncte State Park on famed Lake Ponchartrain.

In Florida the new overseas parkway along the Keys to Key West was under CCC development with emphasis on landscaping, planting, and general right-of-way improvement.

Region 2, headquarters Omaha, Nebr., reported unusually good progress during the year on State, county, and local park developments with Federal manpower and funds as result of "an established policy of advanced planning,





On the bridge trail in Yosemite National Park.  
(National Park Service Photo.)



Skiing is one of the major winter uses of parks and recreational areas.  
(National Park Service Photo.)



Happy faces like these, made possible by park and recreational areas and facilities, are the parkman's reward. (National Park Service Photo.)



Middle Fork of Kings River from South Fork of Cartridge Creek, Kings Canyon National Park, California. (Photo by Ansel Adams.)



including studies of outdoor recreational deficiencies with interpretative reports on existing facilities.”

Among the region's major projects were: The huge, unique amphitheater in Red Rock Park near Denver; additional units in the restoration of New Salem Village in New Salem State Park, Illinois; and flood control, excavation, and picnic ground developments in Chicago's Cook County Forest Preserve, notably in Skokie Lagoons. Other important activities in the region included: Beginning of work on two new Illinois areas at Chain O'Lakes and Kickapoo State Parks; completion of lodge and refectory at Pere Marquette in Illinois; amphitheater and riding stable at Shakamak State Park, Indiana; winter sports facilities at Pokagon State Park in the same State; and a major saddle barn development at famous old Turkey Run State Park, also in Indiana.

Michigan projects of interest included toboggan slides, ski trails, and skating ponds in the Grayling area near Hartwick (Pines State Park; picnic-ground developments and water and sanitary facilities on several Gogebic County park areas; and campgrounds and water and sanitary facilities at Ludington State Park.

The fish hatchery, rearing ponds, and game farm at Meade County State Park in Kansas were well advanced, and in Minnesota CCC work continued at Gooseberry Falls, Cottonwood, and Itasca State Parks. The Gooseberry Falls program was finished on September 30, 1940, and at Itasca the Forest Inn structure was completed and the superintendent's residence and service area well advanced.

Missouri projects of particular interest were general recreation development of Babler State Park; completion of the big dining hall at Washington State Park; and acquisition of three new State parks in the northern part of the State. In North Dakota's Turtle River State Park the CCC camp finished the combination building in the picnic area, a contact station, custodian's residence, and the Service area, and moved out on October 1. In South Dakota work progressed at Custer State Park, Stockdale Lake, and Sylvan Lake.

In Wisconsin the work at Pattison, Devils Lake, and Interstate State Parks was noteworthy. In the latter area the development program was completed and the CCC camp was ready for evacuation at the end of the year. At the University of Wisconsin Arboretum the work was directed at tree and shrub planting, wildlife management, food and cover planting, and lake and pond development.

The Southwest, which comprises most of the National Park Service's Region 3, may become the “proving ground” for a new policy in Federal-State cooperation to permit development of State recreational areas on federally owned lands, according to the year's report on progress from the regional office in Santa Fe, N. Mex. Initial steps to provide for such an arrangement were taken through congressional legislation which authorizes the War Department to give the State of New Mexico an easement deed to 640 acres of

federally owned land fronting on the 16,000-acre lake created by the Conchas Dam, constructed by United States Army Engineers, in eastern New Mexico.

The National Park Service has agreed to cooperate with the War Department and the New Mexico State Park Commission by undertaking a CCC-development program which will include overnight cabins, concession and bathhouse building, bathing beach, boat docks, picnic units, roads, and provisions for camping. Before this program can be completed, the State legislature must pass a law to permit acceptance of the easement deed from the War Department. The State Park Commission would administer the area but the War Department would retain title to the land. New Mexico thus has an opportunity to provide fishing, boating, swimming, picnicking, camping, and other outdoor activities in a region which will draw visitors from Colorado, Texas, Oklahoma, and Kansas, as well as providing additional needed recreational facilities for New Mexicans.

The congressional legislation resulted from a cooperative arrangement between the National Park Service and the War Department, entered into after New Mexico State officials had expressed a willingness to proceed with the projected development. Inasmuch as many of the States have artificial lakes under control of such agencies as the War Department, Fish and Wildlife Service, and the Bureau of Reclamation, the New Mexico project, if carried out, should provide a good opportunity to determine the feasibility of similar arrangements elsewhere.

New Mexico has become increasingly recreation-minded, largely because of use facilities made available by the CCC. Projects completed during the year include Hyde State Park, near Santa Fe, where there are two ski runs, lodge, and ski tow, with a building to house the motor and ski tow equipment. In the Tucumcari Metropolitan Park, the bathhouse, swimming pool, and caretaker's cottage were completed, and the project turned over to the city.

A unique development was launched in Arkansas, where an “old-style” fishing village is being built in Lake Catherine State Park. Bricks salvaged from abandoned trolley-car lines in Hot Springs are being used to pave the streets which will be lined, at intervals, with kerosene light standards.

In Devil's Den State Park, Arkansas, a dam is being constructed to create a second lake, covering approximately 50 acres, for swimming and boating. In this same area a headquarters service group was completed. Other finished projects in Arkansas include a checking station and store in Petit Jean State Park; and overnight cabins and an entrance road at Buffalo River State Park.

Texans, like most folks in the world, are particularly partial to water areas, where there are opportunities for swimming, fishing, and boating. Dams for creation of artificial lakes were completed in Cleburne, Daingerfield, and Huntsville State Parks; while in El Paso's Aescate County Park, the area for a 100-acre lake was excavated and is being sealed. A boathouse and docks, and 5 miles of road were built in the Huntsville area, and a bathhouse,



swimming pool, and golf course were made available in Lockhart State Park. Six housekeeping cabins, a custodian's residence, and large play field, were added to the facilities in Garner State Park.

Other State parks in Texas reported the following projects completed during the year:

Mackenzie—Bathhouse, 2 miles of road, 2 large parking areas, polo field, and an athletic clubhouse.

Goliad—Custodian's residence, and additional restoration of the historic Mission Espiritu Santo.

Tyler—Bathhouse, beach, parking area and stable.

Brownwood—Six housekeeping cabins, bathhouse and beach, fishermen's barracks, parking area for 200 cars, and 2 miles of road.

Longhorn Caverns—Four miles of road, a parkway to the Inks Lake State Park.

Daingerfield—Bathhouse and concession building, fishermen's barracks, custodian's residence.

Fort Parker—Bathhouse and beach, and large picnic area.

Balinorhea—Twelve-cabin court unit, with patio.

The State-owned section of the proposed Big Bend National Park was reoccupied by a CCC company, which completed 4 miles of high standard road and 8 miles of bridle trails.

In the Tyrrell Metropolitan Park at Beaumont, a golf course and two tennis courts, custodian's residence, large stable and show ring, arboretum, and a combination building that includes a museum, were under construction. A 200-car parking area and two picnic shelters were built in the Whiterock Metropolitan Park, Dallas. Lake improvements carried out there included dredging and riprapping.

Development was started in Lake Austin Metropolitan Park, a rugged area 13 miles northwest of Texas' capital city. Beach improvement, boat docks, levees, bathhouse, main road, and picnic areas, are included in the projected construction program. Other areas where development was started during the year were Inks Lake State Park, in Burnet County, where the work program includes bathhouse, overnight cabins, combination building, shelters, docks, and beach improvement; and Eagle Mountain County Park, near Fort Worth, which may become the nucleus of a series of recreational areas in that vicinity, featuring aquatic activities and overnight cabins.

There were extensive additions to use facilities in seven Oklahoma State parks. The Boiling Springs area was turned over to the State, as a completed unit. In Lake Murray State Park, 25 housekeeping cabins were completed, campground development was carried on, and two permanent floating bathhouses were built. Additions in the Beaver's Bend State Park included 5 housekeeping cabins, park entrance road, and superintendent's residence. Five cabins and a superintendent's residence were provided in Robbers' Cave State Park; cabins and campground development in Osage Hills State Park; campground development in Roman Nose; and overnight cabins and superintendent's residence at Quartz Mountain.

In Utah, a harbor for small motorboats was completed in Provo Metropolitan Park, while in the Farmington Bay Game Refuge additional dikes were provided in improving the area for migratory birds.

Work in Arizona areas included completion of 8 overnight cabins, a playfield, and water reservoir in Hualpai County Park, near Kingman; concession building, stable, utility area, and 10 picnic ramadas in Phoenix South Mountain Metropolitan Park; and utility group, stable, custodian's residence, and lodge, in Tucson Mountain County Park.

From the National Park Service's Region 4, comprising the States of Washington, Idaho, Oregon, Nevada, and California, comes the report that the interest manifest by the public, the State park authorities, and the Civilian Conservation Corps enrollees has remained at the same high level since the inception of the CCC program. All park authorities are eager to continue the Federal-State cooperation program because of the good results in park improvements and a feeling that the CCC boys themselves are getting fine training which will reflect favorably as they begin to assume leadership in their home communities.

The outstanding project in California is La Purisima Mission. This project is concerned primarily with restoration of the more important buildings and other structures and facilities of the old Mission de La Purisima Concepcion and the providing of housing for future operation and maintenance of the area. Restoration work during the year consisted largely of continuing projects begun in preceding years. Units worked on include the monastery building, the shops and quarters building, with walled patio area adjacent; the church building with an adjoining walled cemetery; and the mission garden. All these buildings and walls are of adobe brick construction with tile roofs. The adobe brick, roof tile, and floor tile have been hand-made on the project by CCC enrollees. So, also, has all hardware, such as hinges, locks, door catches, etc., and the woodwork—doors, grilles, windows, railings, pulpits, and furniture.

New work undertaken and nearly completed during the year includes a custodian's residence, gardener's residence, combination help's quarters and utility building; sewers and a sewage-disposal system and a water-supply system consisting of a 10,000-gallon concrete reservoir and 3,000 feet of pipe. Approximately 800 feet of old mission aqueduct has been reconstructed, and about one-third mile of stone gutter has been built along the park road. There has been interesting archeological investigation work in the recently acquired area where was situated part of the old mission cemetery in which old records reveal 539 burials. Seventeen of the graves were located in the excavation.

During the year the CCC company at La Purisima, through a side camp of 25 men at Morro Bay State Park, completed the work previously begun by a full company located in this area.

At Cuyamaca Rancho State Park, down near the Mexican border, the work of the CCC has been of two classes: Development of use areas and a conservation program

including stream-bank protection and removal of forest-fire-hazard material. In the first category has been the development of a boys' group camping area near the north boundary of the park. Within the year in that area have been completed a 100,000-gallon concrete reservoir, a mess hall, two combination shower and toilet buildings with necessary water supply lines, sewer lines and sewage-disposal system for the three buildings.

San Clemente Beach and Doheny Beach State Parks, located on the coast about 2 miles south and 4 miles north, respectively, of the town of San Clemente, are typical California beach parks. Doheny Park, though small in area, has a fine ocean beach which is heavily used. The work in these areas has been confined largely to construction of picnicking and camping facilities and some erosion control.

At Pfeiffer Redwoods State Park, the most southerly point along the coast where Redwood (*Sequoia sempervirens*) is found, work has been concentrated on completing projects begun during the previous winter. These include a small artificial lake for swimming, additional camping area on the west bank of the Big Sur River, and a low dam in the river to provide swimming for the boys' camp near the park's north boundary.

The one metropolitan park under CCC development in southern California is Griffith Park in Los Angeles. Here the year's work was confined to erosion control in the Fern Dell picnic area, tree surgery in cooperation with the city park department, a 1,900-foot drainage channel, and the picnic ground at the archery range.

Mount Tamalpais, noted for its superb views of the surrounding country, is partially in the Marin Municipal Water District and partially in Mount Tamalpais State Park. In the Mount Tamalpais State Park portion, work on the mountain theater was nearly completed. This outdoor theater, ideally situated and capable of seating several thousand spectators, is constructed chiefly of large boulders placed to present a perfect view for the spectators, not only of the stage, but of the valley, and a portion of San Francisco Bay.

Humboldt Redwood State Park, in the heart of the coastal redwood country, comprises several groves of *Sequoia sempervirens*. The year's work here included shower and toilet buildings at Williams Grove and Burlington; sanitary facilities at the Tall Tree area; camping area for 20 parties at Burlington; and picnicking and camping facilities at Richardson Grove.

In Mendocino Woodlands Recreational Demonstration Area the emergency relief appropriation project made good headway. Organized group camps Nos. 1 and 2 were planted in shrubbery and clover, the concrete swimming pool was completed, water lines laid and sanitary facilities installed. Work was started on camp No. 3 and plans drafted for its completion.

During the year 6 CCC camps and one ERA work project were engaged in park development in Oregon. The CCC

camps were at Coos Head, near Charleston; Prescott, near Medford; Silver Creek, near Silverton; Woahink Lake, near Glenada; Saddle Mountain, near Seaside; and Short Sand Beach near Nehalem. The ERA work organization operated in the Silver Creek Recreational Demonstration Area adjacent to Silver Creek Falls State Park.

The Coos Head camp was active on three areas. At Cape Arago State Park, 5 miles south of Charleston, projects included completion of a comfort station, sewage disposal system, water supply system and fire hazard reduction. In Coos Head Metropolitan Park work was limited to forest clean-up. Work in the Institute of Marine Biology area involved completion of a short truck trail, a log cribbed sea wall and finishing touches on a fresh water system. The latter job was an ambitious one for CCC as it called for a 20,000-gallon elevated tank, a water collection system, several hundred feet of pipe line and a concrete pump house with operating machinery. The job was possible through the cooperative assistance of the United States Coast Guard and the University of Oregon.

The Prescott Camp was engaged at Prescott Metropolitan Park and Casey State Park. The work in the metropolitan park was confined to road surfacing, construction of tables and benches and a park water system. In Casey Park major projects were completion of a cooking shelter and several picnic units. Bear Creek activity covered completion of a water system and installation of several picnic units.

Although the Woahink Lake camp was occupied only 8 months of the year the work accomplished contributed substantially toward making Jessie M. Honeyman Memorial State Park one of Oregon's best. Noteworthy were a parking area near the bathhouse on Cleowax Lake; a picnic ground, with 20 complete units and an adjacent parking area; and a water system.

The benefits of CCC project activity at Silver Creek Falls State Park will not be fully realized until the 1941 season, as the principal projects are not finished. These include a concession building, a sewage disposal system to serve the most heavily used portion of the park, and a 1,500-car parking area.

The Saddle Mountain camp concentrated on road construction and completion of jobs at the Klaskanine Fish Hatchery and Ecola State Park. Two large vehicle bridges are outstanding.

The Silver Creek ERA organization finished a second youth camp. Representative accomplishments are 12 campers cabins, 4 leaders cabins, a dining lodge, an infirmary, help's quarters and a camp administration building.

In the State of Washington two buildings were completed at Moran State Park out in Puget Sound. Most important of these is the caretaker's house on Cascade Lake, which will serve as a control point for the Cascade Lake campground and be near the maintenance group. At Millersylvania State Park, 10 miles south of Olympia, a second wading



pool, a swimming float unit, beach improvements and 100 rustic table and bench combinations were among the completed projects.

At Beacon Rock State Park, 4 miles north of North Bonneville, the important project was construction of a guard rail and 16 bridges on the trail to the summit of Beacon Rock. At Riverside State Park near Spokane stone portals were finished at the southern entrances to the park on either side of the Spokane River. The main construction job in this area is the rustic suspension bridge over the river connecting the East and West Bowl and Pitcher picnic areas.

The CCC camp at Riverside also has worked at Mount Spokane State Park through a side camp. Probably the most ambitious building constructed in the State parks of Washington is the Trail Lodge at Cooks Cabin area below the summit of Mount Spokane. In this structure are accommodations for a good number of visitors. There are facilities for providing simple meals, and a spacious lounge with a massive stone fireplace and a wide expanse of windows overlooking the surrounding country. The lodge will be used extensively by winter sports enthusiasts as well as by summertime picnickers and vacationists.

In Idaho the summer work program at Heyburn State Park, 9 miles east of Plummer in Benewah County, work progressed on the park's concession building and the fence around the entire park, to keep cattle off the area, was completed.

#### *Park Use Programs*

Through the Region 1 office of the National Park Service 5 non-Federal agencies received assistance in the initiation of leadership programs on 23 areas. The Service also aided in the establishment and operation of the Virginia Natural History Institute which was opened at Swift Creek Recreational Demonstration Area, Virginia, as the first nature leader's training course of the South. A maximum enrollment was reached.

New gains were recorded during the year in the serviceability of the 53 organized camps available in the 22 recreational demonstration areas of the region. Four hundred and fifty agencies made use of camping facilities for a total of 240,000 camper days while more than 1,000,000 visitors were accommodated by the 15 public areas now available.

The expansion of the park-use programs in Region 2 is enabling people, in increasing numbers to benefit more fully from their visits to park areas. Year-round naturalist programs are being conducted in some of the parks in Michigan, Illinois, Missouri, and Indiana. This year Michigan and Iowa joined Indiana, Missouri, and Illinois in providing State supervisors for their programs. The programs include the preparation of nature notes for distribution in park areas and the writing of nature columns for local and metropolitan newspapers; special and regular nature tours, campfire sessions, and illustrated lectures

both within and outside the park areas; the organization of nature clubs and nature projects; the establishment of trailside museums, nature exhibits and self-guiding nature trails; the establishment of cooperative relationships with State universities, newspapers, radio stations, and local, State and Federal agencies; and training conferences for park leadership.

For the 1940 summer camping season there were 17 group camps available, with 3 units now assigned to the National Youth Administration at the Waterloo Recreational Demonstration Area, in Michigan, providing camping facilities for approximately 150,000 camper use days during the summer period. In addition a considerable number of camper days were expended through short-term permits prior to and following the 10-week seasonal permits.

Emphasis was given throughout the year to the development of public use areas and maintenance and operating facilities.

This year the twenty-fifth annual meeting of the National Recreation Congress was held in Cleveland, Ohio. From an initial attendance of a few hundred people representing about 40 municipalities and a small number of private agencies, the attendance has gradually increased to more than 1,500 delegates. These delegates represent a variety of agencies of all levels of government, private organizations, colleges, public school systems, individuals, civic organizations and a number of professional associations. Probably more than any similar gathering this congress is representative of a cross section of the interests of community life.

The dominant theme of the Congress was, the Place of Recreation Under Present World Conditions. Generally it is conceded that the contribution which the recreational agencies made during the first World War constituted one of the outstanding social achievements in United States history. Because of this fact it is felt that the present situation offers an unusual opportunity for careful cooperative effort on the part of all agencies concerned with the provision of recreational services. In all discussions at the congress relating to a Nation-wide program of recreation services were stressed the importance of united local community initiative, of lay leadership, of trained personnel, and of careful and effective integration and guidance of Federal and other national services.

The White House Conference on Children in a Democracy, held in Washington in January 1940, was the fourth in a series of such conferences held at the call of the Presidents of the United States in the last 30 years. Representatives from National, State, and local, private and public agencies dealing with various types of social services were present. The National Park Service, as well as other agencies concerned with parks and recreation, officially participated in the discussions.

Every aspect of child life was explored—the home, material security, recreation, education, religion and health—

and the contributions which the various agencies are making, or could make, in preparing the child for the responsibilities of citizenship, were given thoughtful consideration. In all discussions much emphasis was placed on the relation of happy, well cared for children to a successful democracy.

The interrelation of recreation to other fields of social service was brought out in all the deliberations at the general and sectional meetings. The conclusions and recommendations of the conference are set forth in general and topical reports which may be obtained from the Children's Bureau of the United States Department of Labor, Washington, D. C.

Conscious of its responsibilities for helping to bring about joint consideration of the programs and objectives of all national private organizations and Federal agencies concerned with the provision of wholesome recreation for the people, the National Education-Recreation Council for the first time held its meeting in Washington this year. Fourteen private national organizations and 13 Federal agencies were represented.

The activities and functions of the Federal agencies were set forth by their representatives. In the round-table discussion which followed, it was agreed that such joint meetings were important and should be repeated. Mrs. Franklin D. Roosevelt, one of those attending, propounded this question, "How much, through recreation, can we increase the realization of what citizenship means in a democracy?"

#### *Changes in State Park Administration*

During the year the following administrative developments in the park, recreation and conservation agencies of the States came to the attention of the National Park Service:

Maine—H. E. Kimball was appointed secretary of the State Park Commission to succeed Raymond E. Rendall, who, as Forest Commissioner, is ex-officio a member, of the commission.

Florida—Harry Lee Baker has resigned as State Forester

and H. J. Malsberger is now Acting State Forester. In Florida the State Forester is the State Park Authority.

Massachusetts—Raymond J. Kenny, for 20 years an employee of the Conservation Department, was appointed Commissioner of Conservation to succeed Ernest J. Dean, who resigned because of ill health. Edgar L. Gillett, of Canton, succeeded Mr. Kenny as Director of the Division of Parks and Recreation. Chief Forester Harold O. Cook has been appointed Director of the Division of Forestry; Earnest W. Barnes, Biologist in the Division of Marine Fisheries, has been appointed director of that division; James E. Agnew is Director of the Division of Fisheries and Game; and Joseph A. Hagar is Director of the Division of Wildlife Research and Management, and State Ornithologist Bartol Parker, of Framingham, has been designated to handle public relations for the department. An advisory board of the department, composed of the directors of divisions has been organized by the commissioner.

Louisiana—Reorganization of Conservation Department: On July 8, 1940, the Governor approved an act providing for the reorganization of the Department of Conservation and the abolition of the Louisiana State Parks Commission. State parks, in the future, will be under the jurisdiction of a Division of State Parks within the Department of Conservation. Provisions of the act make the Department of Conservation responsible for the conservation and development of wildlife and other natural resources of the State, except oil and gas and other minerals and the acquisition, development (care, and maintenance of State lands, forests, parks, game preserves, cemeteries, and monuments, and facilities for public recreation).

The Department of Conservation shall consist of the position of Director of Conservation, the Board of Conservation (to consist of nine members appointed by the Governor with the advice and consent of the Senate, for overlapping terms of 9 years), and Divisions of Parks, Forestry, and Fish and Game.

Virginia—Legislation was enacted changing the name of the Virginia Conservation and Development Commission to the Virginia Conservation Commission.



# A NEWSPAPERMAN LOOKS AT THE SHENANDOAH NATIONAL PARK

by EARL GODWIN, *Chairman, President's Press Conference*

WELL, you have read the title. It was handed to me; and I am glad to oblige by putting down on paper some of my thoughts about this great park. One thought is that every time this particular newspaperman looks at the Shenandoah National Park he thinks of the words that have been repeated so many times since David wrote them: "My strength cometh from the hills." And frequently, looking across that wonderful Page Valley from one of those straight-up cliffs of the Blue Ridge, this newspaperman has agreed with himself that the West Virginians ('way across a couple more ranges to the west) knew what they were about when they chose as their state slogan "Montani Semper Liberi." There is something free and open and splendid about mountains. Mountaineers are always free. From the Swiss down to the West Virginians. And do not let that marksmanship record of William Tell and his arrow discourage anyone from defending the marksmanship of our Blue Ridge mountaineers before the days of the park. The long rifle is an American institution. Long range and good marksmanship are a part of our tradition brought about in part by the clear American mountain air; and incidentally that long-rifle tradition and good marksmanship finds a counterpart today in the long accurate guns of the United States Navy.

This is all a long way from writing about the Shenandoah National Park, but are thoughts which come tumbling over and over like the waters of that amazing stream in the park's White Oak Canyon. In the spring when that stream is full you do not need go anywhere else to see a tremendous, wonderful mountain cataract. And even when the summer reduces the flow, White Oak Canyon is a mystic sight. Think of what has been going on there for millions of years; the persistent stream wearing down that Gibraltar of rock.

Of course, the stream in that canyon has no monopoly on that business of cutting down the mountains until with the help of the weather and the elements generally they will wear the Blue Ridge down to a nubbin. There is another great gray Blue Ridge rock out along Matthews' Arm (is not that a name for a ridge!) over which a stream dashes; and as you view it from a couple of hundred yards distance you get the idea of millennial spaces of time.

Waterfalls in the Shenandoah National Park are really cascades. A stream does not get much of a running start in the Blue Ridge. That is a mountain range that just suddenly sticks up out of the ground; no lazy easy foothills. You just come to the foot of the mountains and go right straight up; hence the streams for the most part leap out of the mountain side in the form of springs . . . and from

then on they just tumble downhill. And, incidentally, having tried trout fishing in several of these crazy tumbling streams, may I say that only a park ranger, a native mountain boy or a goat can do one of those cascades real justice.

Yet not all of these mountain streams are so tough on the city fellow. I am thinking of Big Run, a gorgeous broad mountain stream that has found a beautiful glade in which to run down to the Shenandoah River, that "ribbon of silver," whose curving travels through the Valley of Virginia make that one of the garden spots of the East. Big Run is in the southern third of the park; you get to it best from the Elkton side of the ridge and as you walk upstream you are conscious of the fact that here is a watercourse that must have been the scene of many a prehistoric gathering, for at one spot Big Run winds through rock formations which could not have been missed when our earlier cave men or prehistoric redskins were looking for a natural outdoor temple.

It is one of those streams which has everything the mountain lover likes; the white and green water; the dark, still, deep pools; rapids over gravelly bottom; the great bends where some vast tree has spread its branches in protection. Willows . . . moss . . . Peace!

There are others; but I am thinking particularly of Jeremy's Run (It must have been "Jeremiah's Run"; although local preference seems to be for "Germany's Run"). There is 7 miles or more of real trout stream in 7 miles of wilderness at the foot of a great friendly mountain called The Neighbor. For the most part, too, Jeremy's Run is an easy descent to the same Shenandoah into which Big Run pours.

Well! What of it?

Why, you big cynic, you: Don't you realize that I'm pointing out to you *wilderness* . . . within a couple of hours of the National Capital and its million people in and around the District of Columbia! Wilderness within a day's motoring of the largest concentration of population in this country! That's why Shenandoah leads the field in visitors.

Few motorists will take the trouble to explore these streams; but they are there, carefully watched to keep their wilderness forever.

The mountains, though, are the real and great features of this park. Oldest mountains in the U. S. A., some one tells me; anyhow, they are good mountains for the average city fellow to try out. You can start mountain climbing in the kindergarten class and end up as one of these classy climbers with ropes, picks, boots, packs and all. You can follow the Appalachian trails or any of the side trails laid



by ceaseless CCC workers; and you will be able to find an hour's walk or a week's tramping. I imagine that few amateurs want anything tougher to climb than Old Rag, that huge rock mountain which stands all by itself, like a guardian to the eastward, blocking the Blue Ridge from the aesthetic influences of the Piedmont region. Or, if you really want a sporting event, try going down the Devil's Staircase, which is a cleft in the rock mountain which plays no favorites. There is nothing easy about going down the Devil's Staircase.

The Rapidan is a Blue Ridge stream; and on the Rapidan near the headwaters former President Herbert Hoover pitched camp, which remains today, a camp given by the former President to the Government for the use of Presidents. It is in a great forest; and the Rapidan at that point is just the sort of stream to fascinate a lover of the mountains. Mr. Hoover specified he wanted a camp site within 100 miles of Washington; in the mountains, with a stream he could listen to as he dozed off to sleep. And this spot is just within the 100-mile limit.

Of course the best-known feature of the Shenandoah National Park is the Skyline Drive. Ninety miles of splendidly built highway curving easily along the crest of the range. In that 90 miles the motoring mountaineer can find the things a motorist must have. Camps; charming restaurants; picnic grounds; gas stations. But not too many, thank our stars. The Skyline Drive runs straight down the

line; and out of 940,000 visitors to the park only a small percentage leave the concrete. Only a few camp on the mountain side; but those who stop and begin to delve into the wilderness features will find endless opportunities for exploration in mountain places. Locally the valleys are known as "hollows"; and the spaces between mountains are "gaps." There is Civil War history; and some Revolutionary history in these spaces. Stonewall Jackson, who knew the Blue Ridge well, marched his athletic boys in gray through these gaps and up these hollows; the war was fought on both sides of these ridges; and in the park there is the lonely grave of a soldier who had fought in both the Blue and the Gray armies.

I suppose the great sentinel who watches out from the ridge is the Stony Man; a rock profile which has seen many millions of years go by in the valley below. He is the old man of the mountains now visited by hundreds of thousands of visitors to Skyland, which is the name of one concession just off the Skyline Drive. As you look up at the old stone face from the valley below, you will wonder how any human being can get to that top. An Eagle!—Yes. But never a human. Yet the engineers have made it so easy. It's just a pleasant easily graded uphill stroll. Really a very good introduction to Blue Ridge Mountain climbing, because from the Stony Man eminence on a clear day you can seem to see all the way across the continent!

Well, anyhow you can see into West Virginia.

# THE NATIONAL RECREATION REPORT

by HERBERT EVISON, *Assistant Supervisor of Recreation and Land Planning, National Park Service*

IDEALLY, every man and woman, and every boy and girl, in America should have daily and year-round opportunity to play in the out-of-doors, to enjoy sunshine and fresh air, to engage in outdoor sports, to get the emotional and spiritual satisfaction of intimacy with natural beauty and grandeur, to thrill to the story of heroic deeds in the surroundings in which those deeds were performed, to absorb knowledge of those animate and inanimate processes by which America has been made what it is.

Over the last 4 years, it has been the task of the Park, Parkway and Recreational Area Study to try to determine, State by State, in cooperation with officially designated State agencies, what has been and is being done already to provide this many-faceted opportunity to the people of America; what needs remain unfilled; and with what places, and processes, and developments it may be hoped to meet those needs.

Review of the 31 detailed and voluminous State reports which mark the accomplishment of the first phases of this study, points definitely to certain conclusions, which are applicable not simply to individual States, but to regions which embrace parts or all of a number of States and to the Nation as a whole. It is these conclusions which are embodied in the Study of the National Recreation Problem, which probably will have emerged from the Government Printing Office by the time this Yearbook appears in print.

This report is the concentrate which has resulted first from "mining" the State reports and special studies which have been produced during the last 4 years and then sifting out the basic and essential material which is felt to possess real significance with respect to recreation as a problem of the Nation as a whole. Primarily that problem is one of determining needs and requirements on a national basis and of correlating the efforts of a great number and variety

of agencies—Federal, regional, State and local—often working at cross purposes or in wasteful competition, toward a goal of over-all accomplishment that shall be at once more effective and more economical.

While the study recognizes that recreational land planning is still a far from exact science, its emphasis, as might be expected, is very definitely upon the necessity of eliminating, with respect both to the creation of systems and the development of individual areas, of the haphazard methods which have produced many recreational undertakings at a cost sadly disproportionate to the expected or actual social return.

"No . . . planning of systems or areas can wisely be undertaken," says the report, "which is not based upon the most careful effort to determine what people need and will use, and what is the capacity of any area or system of areas to meet such need and use."

Repeatedly stressed is the necessity of selection of recreational lands on the basis of ultimate real cost, not merely of the lands themselves, but of the developments required for their maximum usefulness and of the maintenance which must be undertaken as soon as any area comes into public possession and continued from that time onward. "The history of park acquisition . . . is full of instances of the ultimate costliness of cheap land, or land acquired by gift."

"It is apparent," the report adds, "that selection . . . (of recreational areas) cannot be satisfactorily consummated without at least a careful advance reconnaissance, for the purpose of appraising existing values and possibilities for development inherent in the area, visualizing the principal elements of the ultimate development, and formulating estimates of the cost both of installing and maintaining them. It is depressing to reflect upon the great sums of money that have been required to supply necessary facilities in certain areas, and the other considerable sums which will, henceforth, be required to operate and maintain them, because of failure to give them proper study in advance of acquisition."

Emphasis, during the last 8 years, has been rather heavily on development, due to the availability of several types of relief projects as well as the CCC; and eagerness to attain rapid progress in development has tended to relegate to the background consideration of ultimate and permanent responsibility for the regular, year-after-year processes of administration, the selection of competent personnel and the establishment of efficient and economical operation and maintenance. The study recognizes this situation and endeavors to bring a better balance among the several parts of the whole park and recreation undertaking by a careful analysis of the administrative function and of the essential features of an effective administrative establishment.

Because of its size, and the great diversity of its responsibilities, the National Park Service organization is given a careful analysis and provides the "jumping-off place" for the discussion of administration. Recognizing that com-

paratively few of the administrative organizations of other agencies can even approach that of the National Park Service in extent and in degree of "departmentalization," the study nevertheless uses its analysis to point to certain phases of the administrative task which often are given scant consideration, or none at all, but which are essential to an adequately organized park program. With reference to promotion of such use as will result in a greater public yield from the park "plant," the report declares:

"In virtually every State, it is possible to enter almost any park on a week-day, even in summer, and find it almost deserted and its expensive plant idle because there has been little or no attempt to organize and lead use during those periods when use is pleasantest because freed of the pressure of great crowds. In a few alert and energetic States it has been amply proved that where planning and organization and leadership are provided through competent and trained personnel, the usefulness of park facilities can be gratifyingly increased, and far greater interest aroused in those natural or historical features which characterize every wisely selected State park. And it can be done without application or even suspicion of either regimentation or compulsion."

Additional concern with and emphasis on proper management, by the States, of areas of historic or prehistoric interest, and development of interpretive programs which will provide the park user with a profounder understanding of what he sees, are urged on the States as a means of more satisfactory performance of their administrative tasks. It might almost go without saying that special emphasis is laid upon the necessity of proper planning and, inseparable from that, employment of qualified planning personnel; likewise on an orderly budget procedure as the means of keeping expenditures in a proper relationship.

"The budget, properly prepared and intelligently used, is one of the major indices of efficient park administration. It is a form of advance planning, for one year, two years, or longer periods, essential to businesslike conduct of every phase of the park program: land acquisition, development, operation and maintenance. Without it, legislative appropriations become a matter of blind trust (an attitude not common to legislative bodies); development a haphazard process, and operation a hand-to-mouth procedure that may result in feast for one park and famine for another."

Any over-all study of park and recreation administration sooner or later inevitably leads to consideration of the multiplicity of agencies which are active in this field and to the lack of coordination which, both at the Federal level and in numerous States, results in a disorderly pattern of provision for recreation, consequent competition between agencies, and probably a considerable waste of public funds both for development and administration. Says the report, in what appears to be one of its most significant sections:

"At the Federal level there is no policy regarding recreation, in designation of areas, in development, or in operation.



Each bureau or other agency establishes its own body of policy; many undertake developments with little or no concern for their possible effects on those of other agencies—Federal, State, or local—frequently without regard to the relationship between public cost and public gain, and often without apparent thought as to who will handle the administrative task or what the cost of operation and maintenance may be.

“Thus we find the anomaly of one Federal agency charging for the use of public facilities as little as one-twentieth as much as is charged by another for facilities comparable in quality, extent, and cost. Similar disparities in administrative policy are numerous.

“While many individual States have arrived at a fair degree of coordination—chiefly those in which the land-administering agencies are grouped together into a single department—others have still fallen short of it. In general the same may be said of local units of government. Because of the tendency of Federal agencies to deal in all matters more or less directly with analogous State agencies, disparities in policy among the Federal agencies tend to reappear at the State level.

“There is today urgent need for a Federal policy on recreation. Such a policy appears to be attainable only if a single agency is charged with both responsibility and authority for coordination of recreational activities. Such coordination would require, with respect to proposed developments, a showing of public need, and a balancing of cost of both development and operation against probable public benefit. And it would require also the finding of common bases for fees and charges which would remove at least some of the absurd and prejudicial differences that exist today.

“The National Park Service, through the Park, Parkway and Recreation Study Act of 1936, has already been designated by Congress as the agency to study and appraise the programs of Federal agencies, and to examine the areas and facilities administered by them, except those under control of the Department of Agriculture; likewise, in cooperation with the States, to determine both the present and the needed extent of their facilities and those of their political subdivisions. In addition, it is the only Federal agency primarily charged with administration of areas established for recreational purposes. It would appear, therefore, that if any existing agency is to be charged with coordination of all Federal activities in this field, the National Park Service is the logical choice for the task. A logical extension of the responsibility laid upon the Service by the Act of 1936 would be to make it the clearing house for all recreational undertakings in which Federal and State agencies are in any degree joint parties at interest, directly or indirectly.

“For exactly the same reasons, it is desirable that at each other level of government, some single agency be designated as a recreational coordinator. Because of the close relationship between recreational undertakings at the several

levels of government, emphasized by developments during the present Federal administration, there is real need for close, harmonious, and frank cooperation in which the responsibilities of each shall be defined, recognized, and accepted.

“It must be assumed that the National Park Service, the Forest Service, the Fish and Wildlife Service, the Bureau of Reclamation, the Soil Conservation Service, the War Department, the Office of Indian Affairs, and any other agencies of the Federal Government active in the field of recreation have a common desire to play a fair part in meeting the needs of the people whose servants they are, as economically and as effectively as possible. Only by a kind and degree of coordinated action that is honestly based upon that aspiration and that purpose can they, and the many other public agencies engaged in meeting the recreational needs of the American people, play their proper parts in attainment of their common goal.”

Methods of financing park undertakings are given rather extensive consideration; the various sources of funds are analyzed; but no method is recommended as ideal. Probably the major conclusion is that, while funds will continue to be obtained from a variety of sources and by several methods, the main reliance for most agencies must continue to be on ordinary appropriations from general funds.

In the section entitled, “A Recreation Land Plan for the United States,” the report endeavors to indicate “what provision of lands and waters is required to meet adequately the recreational requirements of the American people—a provision which at the same time will give full and fair consideration to all other land-use needs. . . . It includes a brief discussion of the part the several agencies and levels of government may properly be expected to play in effectuating this plan.”

Here, as at many points in the report, the necessity of providing outdoor recreation facilities close to those who are expected to use them is given special emphasis. Careful observation, even though largely limited to those who use nonurban parks and recreational areas of various kinds, indicates that the average distance traveled on all kinds of outings is not great; and a heavy proportion of the population of cities, except on very rare occasions, does not go much, if any, beyond the city limits in pursuit of outdoor recreation.

Recommendations as to provision of parks within cities differ in no major respect from those embodied in *Recreational Use of Land in the United States*, prepared by the National Park Service for the National Resources Board in 1934. In addition to needed playgrounds, playfields, and “parks, or other areas characterized by natural or man-made beauty,” which most forward-looking cities accept as necessities, the report directs attention to the special values of all types of water areas and the advisability of protecting them from pollution and “uglifying” uses; as well as providing points of public access and facilities for use.

The other recommendations of the report may be summarized briefly as follows:

1. Areas for holiday and week-end use, within 25 miles or less of their prospective using population, where picnicking, water sports, day and overnight camping, hiking, and other related activities may be enjoyed, "and which are sufficiently large to provide those who use them with a sense of freedom and of separation from crowds."

2. For rural populations, moderate-sized properties in rural regions, which will provide some of the facilities characteristic of the city playground, as well as provision for a variety of group activities, in order to "satisfy those gregarious instincts and the urge for self-expression which are given so little rein in the daily lives of millions of rural people."

3. Extensive wilderness or semiwilderness vacation areas in all parts of the country that are characterized by forests, rugged terrain, lakes and streams—for vacation use. National parks, forests, and certain other Federal properties, and State parks and forests will all contribute to meeting this requirement, and, over a large extent of the country, a sufficient area of lands useful for this purpose are already in one or another of these types of public ownership. The development required for them is indicated by their principal use.

"In this phase of the total effort to provide adequately for desirable public recreation, it is urgently necessary to coordinate planning among the several Federal agencies and the several State agencies," the report declares, "in order to provide what is needed and at the same time to avoid such multiplication of locations, or facilities, or both, and duplication of planning and administrative organizations as will lay a needlessly large administrative and maintenance cost upon either the user or the general public."

For those regions whose people must travel long distances to reach the more rugged and spectacular vacation areas, as well as for those segments of the population who must find their vacations at short distances from their homes, the report recommends more areas of the kind typified by the recreational demonstration areas, selected, developed, and with few exceptions, administered by the National Park Service. The typical area possesses a fair degree of natural attractiveness, steadily improving forest cover, waters usable for recreation and, important, relative nearness to those who are expected to use them. "It is in areas such as these . . . that provision should be made for organized group camping, as well as for such other vacation facilities as inexpensive cabins and tent camp sites, supplemented by development of those recreational facilities and services which are needed to make a vacation an interesting, enjoyable, and beneficial experience."

4. (a) Ten percent of the frontage on the Atlantic and Pacific Oceans, the Gulf of Mexico, and the Great Lakes—approximately a mile of frontage to each 120,000 persons living within 100 miles of the coast. "Distribution of areas

should, of course, be directly related, so far as possible, to the distribution of the tributary population."

(b) A similar dedication of the shores of major streams, supplemented by such control that their recreational values shall not be unnecessarily impaired.

5. Areas of exceptional scenic, historic, prehistoric or scientific qualities, wherever they may be located and regardless of the fact that some of them may serve comparatively few people.

6. (a) Parkways, for which planning should be undertaken on a national rather than piecemeal scale.

(b) Trails and trailways, not merely in the wilderness—but in the nearer country side, and within reach of street-car and bus lines.

(c) Development of the full recreational potentialities of routes of water travel, whether they be obsolete canals or such active commercial routes as the Intracoastal Canal.

(d) General extension of systems of waysides, as supplements to highway systems, needed to enable the traveler to derive more complete enjoyment from use of the highway itself.

(e) Positive steps to preserve, through extension of ownership or by use of the easement, the natural beauty and the amenities of the American roadside.

(f) Control of outdoor advertising with the objective of complete elimination of this blight from the rural and wilderness landscape.

All these objectives, so briefly summarized here, constitute a very large order indeed; much easier to recommend than to accomplish, particularly in a field in which responsibility is so divided and subdivided. While the report discusses in some detail the essential responsibilities of the several levels of government, the highlights of its recommendations include the following:

1. The Federal Government to provide for such areas as are now its responsibility—national parks, national monuments, and related classifications—with a frank recognition that these are of national concern and that, in consequence, the Federal Government should buy lands required for them which are not already federally-owned, rather than place the burden upon one or more States and on private contributors.

2. Joint Federal and State participation in acquisition of "National Recreation Areas," in recognition of their contribution toward meeting the over-all recreational needs of the Nation, as well as of their special service to the people of the region in which they may lie.

3. Similar joint sharing of costs between a State on the one hand, and one or more local agencies of Government with respect to acquisition and development of areas which provide important day-by-day service to a comparatively small segment of the State, a type already numerous in State park systems, most of them unassisted by any local agency.

4. Federal aid, on a regular and systematic basis.

"It will be seen," the report concludes, "that provision



of adequate recreational facilities for the Nation as a whole is in very large degree dependent on joint agreement and action on the part of agencies at the several levels of government, and that this must be based upon understanding of, and agreement on, the logical degree of responsibility each bears toward situations in which there is a legitimate joint interest. As a means of bringing this about, the application of the Federal-aid principle to the relationship between the Federal Government and the States, and of the State-aid principle to the relationship between State and local units of government is believed to be the most promising. It is abundantly justified by its proved effectiveness in a large number of fields of governmental activity and, specifically, in other branches of conservation such as forestry and wildlife. In these it has served mightily to spur activity and accomplishment for purposes of genuine National or State significance, and it has tended to equalize the burden of that accomplishment on the public as a whole.

"Few persons today are likely seriously to discount the value of a truly national highway system or to deny that, without Federal aid, there would be many States which would still be far back of the procession in supplying roads that are essential components of that national system. Every reason, of human need and of equalization of burden, which can be adduced in support of such aid for highways, education, forestry, wildlife, etc., applies with equal force and logic to the preservation of our scenic, historic, scientific, and outdoor recreational resources and their development for human use. It seems certain that such aid can be extended by such methods as will protect the national interest without involving any undesirable encroachment on the independence of action of State and local governments. National, State, and local interest and responsibility are inextricably intermingled in this as in almost every other field of human endeavor, but there appears to be no good reason why that community of interest and responsibility cannot be placed ultimately on a coordinated and sound basis."

## RECREATION IN THE DESERT

by **GEORGE H. HILLIS**, *Superintendent of Parks and Recreation, Phoenix, Arizona*

THE PEOPLE of Phoenix, Ariz., and the valley in which it lies, have for their enjoyment what is probably the most unique city park in these United States. Its 15,000 acres of desert and mountains not only make it one of the largest municipally owned parks but affords its visitors almost everything in the way of desert recreation. It was born in the minds of William G. Hartranft, president of the Park Board since its inception, and the late James C. Dobbins, that owes its development to the National Park Service and the Civilian Conservation Corps.

The rugged slopes and broad mesas of this park support a botanical catalogue of more than a hundred plants, taught by the ages to adjust themselves to a climate offering 84 percent of the year's total possible sunshine and an annual rainfall of only 7½ inches. This snug little sample of southwestern desert and mountains attracts an approximate quarter million persons per year who picnic and play, hike and horsback, paint and photograph, sun-bathe and study.

It might be said that our most healthful and invigorating pastimes fall under the general term of "Desert Recreation." It is possible that time spent in wise pursuit of desert recreation will do more toward our physical well-being than time spent anywhere outside of a doctor's office. The list of human ailments for which doctors have long prescribed a

desert sojourn is ever increasing, which brings us to the logical conclusion that the desert comes very close indeed to giving us 100 percent recreation for time spent.

In discussing forms and types of recreation in the desert perhaps the first and most simple dictum to the beginner is that he just breathe, and the benefit for which he seeks has begun. Next is sun-bathing, especially in winter months. Its benefits are uncontested and its economy is evident since the entire habit or costume consists of a pair of sunglasses. However, these glasses should be chosen wisely for harm can be done by wavy or off-color lenses.

If you are vitamin conscious you will enjoy knowing that Vitamin D—essential for growth, teeth, and bones—is best secured by allowing sunshine to irradiate an oil secreted by the skin. This produces the vitamin which is then absorbed by the blood stream. Persons who work nights and sleep days or those who must be indoors most of the daylight hours should indulge in this form of recreation whenever possible, and nowhere is it more beneficial than on the desert.

Fog is unknown and humidity often falls to ten; there is no smoke or other agent in the desert air to filter sunrays. If you like your sunshine straight and pure take it on the desert where the bracing nonhumid clarity of desert atmosphere permits the ultraviolet and actinic rays to fall with

undiminished strength upon the back of any man who cares to remove his shirt.

It is not necessary however to disrobe and seriously enter the business of sun-bathing in order to avail yourself of the benefits of desert sunshine for there are many recreations wherein one cannot escape the sun tonic in greater or lesser amounts. The field of entertainment ranges wide upon the semiarid vastness of the desert and its mountains and only a brushing of the high spots is possible in anything short of a novel-length book.

Picnic—a funny sounding little six-letter word—but it describes the world's top-ranking recreation. Its appeal is universal. Old and young, rich and poor, saint and sinner, all meet this word with pleasure and anticipation. Nor ants, nor rain, nor charging bulls have dimmed its shining magnetism. Nations have spent astronomical sums of money and dedicated the most choice bits of their terrain that people might picnic.

In desert recreation the picnic loses nothing and is perhaps even more of a leader for various reasons. There is little or no fire hazard, no danger of starting one of those huge conflagrations which have robbed our people of so much. A day set for a desert picnic can just about be depended upon to be bright and clear and sunny. The oft-depicted scene of picnickers wildly dashing for shelter, leaving the outspread banquet to the buffetings of wind and rain, does not here apply. The spring avalanche of wild flowers, exotic cactus blossoms, the blooming trees and shrubs, all add to the fascinations of the desert as a place to picnic.

Nor are the desert picnics limited to daylight hours. The atmospheric clarity gives full candlepower from the moon and the stars and nowhere are the nights more truly vivid. A campfire in the hugeness of these nights invites a closer gathering to talk.

So well do people enjoy these desert outings that caterers have found a profitable business in staging them with western trimmings and entertainment. A chuck-wagon pulled far out upon the desert, a dinner cooked and served in cowboy style, a yodeling western singer and guitar, a tale or two of bandits, ghosts, and gold. An evening spent beneath the moon and stars—is easy to enjoy; it is recreation.

Horseback riding is also a major means of desert entertainment. It affords an outlet for man's inherent love of horses and offers a most beneficial exercise in the best possible environment. The western style of riding is best suited to the desert; cantle and pommel and longer stirrup of the stock saddle holds preference in negotiation of the steep-sided arroyos and washes which cut the desert floor. Also most riding stock found on the desert has been trained by cowboys to the business of working cattle. They can break from a walk to a run in one explosive action, turn either direction with surprising abruptness, and stop suddenly with a squatting skid on the back feet, any of which might prove embarrassing to a rider insisting on an English saddle.

Horseback riding and picnicking can be combined to

make the perfect desert outing. Early morning rides to preselected spots where bacon and eggs, dutch-oven biscuits, honey, and coffee await your finishing dash and wildwest yell. Moonlight rides where the spirit is subdued as you amble along enjoying the little leathern squeaks and metallic jingles. Where the mellow half-light rims the giant cactus as he lifts his arms in silent supplication and the jewelry of the skies seems close and warm.

Hiking and climbing are, of course, the hobby of hundreds and are to be enjoyed and encouraged in any locality where the devotee should happen to find himself. Probably the only place these pastimes could fail to pay a health dividend would be in a penitentiary where the practice is so frowned upon that dogs are set upon those who try it. But the man or woman who enjoys a morning constitutional from Sixteenth Street to Main and return by the swan lake in a city park, would whoop for joy to go swinging freely through the greasewood into the glory of a rising desert sun.

The desert is alive at this hour with all its inhabitants engrossed in the business of getting their life in order before the midday heat calls them to siesta. They scurry away from your interruption but not so fast that you are not allowed a fleeting glimpse. A desert cottontail may pause with quivering nose for a quizzical glance of inspection before presenting you a look at the powder puff for which he is named.

The longer mile-consuming hikes are only for those who are hardened to the sport of cross-country hiking, but they are the perfect way of learning and truly knowing the desert. Almost everyone who reads has often found the much used "spell of the desert" phraseology and perhaps has often tried to imagine what there could possibly be in the land of sun and sand to cause such emotional gyrations as some of our seaboard scribes so skillfully weave into their desert definitions. Though hackneyed and overplayed the "desert spell" idea is not all fiction and does definitely exist.

Organized hiking of groups or clubs, under competent guides and teachers, offers much in the way of good social recreation and outdoor education. There is lots to learn and many very interesting and satisfying hobbies to be found in these vast stretches which lay outside the runs of ordinary human traffic. There are the birds, the bugs, the rocks, reptiles, Indian petroglyphs, cacti, curious plant life, minerals, camera and brush subjects, anthropology and archaeology, all awaiting your interest and all hobbies which will take you out upon the desert and give health as well as knowledge.

In talking of desert hobbies first place should go to the birds; of all living things there is perhaps no other group so beautiful, so interesting, or so useful. No one can walk or ride through the desert without seeing many of them and hearing their varying calls. Most first-time visitors to the semiarid lands are quite surprised to find the low growing brush housing such an ornithological display. The bird hobby is here easy to acquire because of the ease with which they can be studied in the sparse growth and because



no one can pass them by without wondering what they are, how they live, what they eat, where they drink and a host of other questions which serve to draw your interest to them.

For both the novice and lettered entomologist the desert provides a wide and fertile field of investigation and study. After years of living on the desert one is constantly noticing some new and interesting insect. The rarity of a specie may cause it to seem a stranger because of the long intervals between meeting it, but the tribe as a whole is numberless and runs from the delicately beautiful to the most hideous repulsiveness.

The most widely advertised desert insects are of course the villains. Most of these however are victimized ordinary citizens of bugdom whose greatest transgression lies in their appalling ugliness and the great size which they attain in desert regions. They are astonishingly libeled and the superstitious myths which are built around them are often more venomous than the bugs which they slander.

The case of the scorpion is typical. He is very unattractively bepincered in front and carries an unsheathed sting at the end of his long jointed abdomen. He lashes this so-called tail forward, over his back, to strike the sting by force into the prey which he holds in his claws. He has a poison gland at the base of his sting but the amount of venom required to paralyze the insects which he eats is hardly sufficient to incapacitate a full grown man. His sting can be compared to that of a bee or wasp but the fear caused by his undeserved reputation often causes greater shock than the sting. This list of ordinary insects besmirched by myth and lack of knowledge included the huge hairy tarantula, the 8- to 10-inch centipede, the thousand legged worm or millipede, the hideous but harmless Jerusalem cricket, and the odd and lovely praying mantis. They are not necessarily enemies of man and are undeserving of the total war which most men have declared upon them. But here also dwells the Black Widow Spider, made famous in the last decade, whose poison is virulent enough to class her bite with that of venomous reptiles. She is easily recognized by her jet black shoe-button body with the red or yellow hourglass underneath the posterior. Her webs are untidy ragged funnels but very much stronger than ordinary webs which makes her house easy to detect and destroy.

In your quest for desert insect specimen never use bare fingers to probe under or overturn rocks or other debris. Always use a stick and plenty of caution for you are in a country where 11 different species of rattlesnake can be found and where the beaded Gila Monster holds the dubious distinction of being the only poisonous lizard in this country; where the beautiful Sonoran Coral snake shows his sleek little body banded by the brightest of red and yellow and black, possessing most of the attributes of the non-poisonous snakes but also a kinship with the dreaded cobras of India. Even these, after one has overcome a natural repugnance, make a very fascinating study.

Then comes the desert growth which is often the first thing to attract the interest of strangers. There are many growing things on the desert which have been much publicized in stories and travelogues of the West. The greasewood, the giant cacti, the palo verde, the cholla, the mesquite, the yucca, all have found their way into good books and magazines. It is natural that people paying their first visit to the desert should wish an actual introduction to the plants they have so often met in print. And it is gratifying to be able to point out the things they ask for and to give some account of the make-up, use, and peculiarities of the plant you are showing. Because of the rugged individuality which marks most of the larger cacti, trees and shrubs, a little desert botany is easy to acquire and often leads to a real interest and a happy form of recreation. As it is pleasant to walk down a street meeting and greeting your many friends so is it pleasant to walk among acquaintances in the plant life of the desert. A small amount of study and observation of desert flora will add zest and thrill to hikes which are in themselves delightful.

And there are also the rocks and minerals. Most people fail to notice any rock formations less spectacular than a natural bridge. When hiking in the desert or desert mountains keep an eye on the rocks, they may lead you to an exciting hobby that will take you over miles of new country and be like exploring a new world. Because the skeletons of desert mountains are often laid bare by erosion they present for your inspection many geological phenomena which mother earth usually keeps hidden beneath layers of soil and timber. Rocks hold the secret of the earth's being and a little study of them may add much to your recreational outings and bring a more intimate friendship with the great outdoors. Minerals abound here and often take men to most remote corners of the desert. A hobby finding its beginning in a desert hike may easily grow into a remunerative recreation.

The Indian writings make another study in rocks. As your hike or horseback ride carries you by the protruding rock ledges rising from the desert floor or leads you along the base of the sharply uplifted desert mountain, be sure to keep a lookout for what moderns call petroglyphs, pictographs, or hieroglyphics. They are the reminders of a race long dead, carved in the face of the enduring stone. They are the records and ornamentation, laboriously chipped in stone with stone tools, of a people whose bones have for centuries been dust. They are spread generously over most desert areas and no key to their interpretation has yet been found. Those who are new to the desert country find much interest and speculation in these symbols of the dim past which may yet report the deeds of valor and glory of an age long pushed beyond the horizon of our yesterdays.

Here then is a most fertile field of facts awaiting the archaeologist, the anthropologist, and the paleontologist. And many people roaming the desert for the love and thrill of it have returned with invaluable discoveries to



aid the men of science in their quest for the full story of man.

Any of the hobbies mentioned can be better pursued with a little photography and pictorial records. But the desert itself has long inspired men in trying to capture its mystic moods, its myriad of colors, and its limitless vistas. The advent of colorfilm and plate increases the photographic qualities of the desert and offers a recreational hobby which almost combines the brush and the camera in reproducing the delicately hued desert-scapes. Pictorial possibilities are ever present and many hours of pleasure as well as the thrill of creative artistry go to the person who adopts either of these hobbies.

It is for all these and many other outdoor hobbies and recreations that Phoenix South Mountain Park has been designed, and the popularity and patronage which the park enjoys prove it a valuable asset to the people it serves. The vast area of desert mesas and rugged mountains is penetrated by a system of roads leading to its innermost recesses. There are lookout points where the breathtaking magnificence of twelve thousand square miles of the State of Arizona falls beneath your sweeping gaze, with sawtooth horizons of gaunt and rugged mountain peaks and valleys where great rivers are impounded to serve the need of man. There are over 30 miles of splendid horseback trails winding through the canyons and up to

the highest peaks. There are three separate and well equipped picnic and recreational areas with shade, water, toilets, electric lights and tables and benches to seat one and one-half thousand people. There are two great circular recreational platforms of cement for dancing or skating where the beauty of music and rhythmic motion is enhanced by the softness of the desert night and the stars lay above like snowflakes on black velvet.

This is the desert park and some of the ways to enjoy it, and these are the services it gives to the people with only the restrictions that they use them as they would their own.

Eastern people usually have a misconception of the desert. A very small portion of the southwestern United States is rolling sand dunes such as are found in the Sahara Desert. To the people of the southwest the desert simply means an area without rainfall. The earth is most prolific when watered; it contains all the minerals for plant life that have been brought down by water from the eroding mountains over the centuries. The desert is really an arid prairie with vegetation that can withstand long periods of drought, and after the spring rains it is a mass of wild flowers and grass. Desert land under the irrigation projects is no longer desert, but a beautiful garden, raising most abundant crops. So when you think of the southwestern desert, do not imagine you are wading in sand over your shoe tops.

## DRAINAGE BASIN PLANNING

by A. E. DEMARAY, *Associate Director*, and GEORGE L. COLLINS, *Assistant Chief*,  
*Land Planning Division, National Park Service*

AFTER A CENTURY or more of independent action, often working at cross purposes, and not without some tragic waste, the several local, State, and Federal representative agencies of Government are at last beginning to unite to insure against future flood and famine. They are engaged in a vital effort to stabilize the management of the Nation's water resources. They are devising a plan for the best use of each body of water, and the drainage basin in which it lies, whether it be for agriculture, power production, flood control, recreation, or combinations of those and any other possible uses, so that, collectively, our river valleys will support society with a fair margin of economic security for the individual. That is the aim.

Approach to the problem is being made from the standpoint of the natural drainage basins, or river valleys, of the country. This is in some contrast with former methods, which sought to accomplish local individual objectives, more or less according to arbitrary project boundaries and

without full consideration of all related problems. For the purpose of making studies and plans, and of correlating facts for public information while the work proceeds, 46 drainage basin committee districts have been designated, covering all of the country's natural drainage basins.

This is now an effective organization, in which the objectives of all bodies concerned are being sympathetically represented and appraised. With the National Resources Planning Board's Water Resources Committee acting as coordinator, the advance planning of drainage basins and the review of individual current project planning details by Federal, State, and local agencies are kept constantly before all responsible agencies and individuals.

In this organization park authorities have two major responsibilities. The first is to see that water resources chiefly valuable for recreation are held available for this purpose. The second is to see that the potential recreational resources which can be foreseen in proposed projects de-



Horses are a principal means of travel  
through desert country.  
*(Photo by Julian D. Hayden.)*



A chuck wagon picnic in a desert-land  
park.  
*(Photo by Julian D. Hayden.)*





Glacier National Park's Lake McDonald (*left*) mirrors the above scene of grandeur which exemplifies the recreational worth of naturally majestic combinations of land and water resources.

Boulder Dam and Lake Mead (*below, left*) are engineering achievements of vast historical significance which have opened for the joy of living formerly impenetrable reaches of a portion of the Southwest which otherwise would never have become so useful.



Both Glacier National Park and the Boulder Dam National Recreational Area are of the highest recreational significance. This is true of the former principally because of the refreshment and pleasure we derive through contemplation of its natural scenic perfection and of the latter because of the pleasure we derive from the combination of superlative interests man has created in an unusual setting. There is no conflict of principles between the two, yet they are vastly different in their appeal.

*(National Park Service Photos.)*





signed primarily for navigation, or flood control, or power and irrigation, are defined, planned, and fully developed as collateral uses, or byproducts of the primary objectives. The latter responsibility is believed to offer hitherto little explored opportunities for meeting the recreational requirements of the American people.

When we hear water spoken of as a recreational resource, do we not think of it first as we do of mountains, of forests, of sky? Vast and magnificent in our meditations?

We view the Mississippi, the Colorado, Crater Lake, Lake Mead, the Great Lakes, the sea, and in our contemplation of them we find cultural enrichment within ourselves and within the meaning of great national pride. That is why we strive to keep the waters of national parks in their natural state—so their cultural force and effect upon human consciousness will endure. That is recreation at its best. Boating, bathing, fishing, etc., are fine in the parks, but they actually are less significant than the natural ordered beauty of the surroundings in which they are enjoyed.

Of course, not all waters of recreational value have this deeper significance in great measure. Nevertheless, there is every reason to use those less impressive waters for all they are worth. Numerous projects which create reservoirs of good clean water are being built in drainage basins throughout the country. It is the responsibility of park authorities to bring about a full understanding of the recreational values of such projects and to see that they are suitably developed as integrated project objectives. Thus, eventually, we shall arrive at full-scale use of water as a recreational resource.

The organization and policies of committees in the drainage basin planning work deserve special mention. They were evolved to cover a wide and diverse range of interests, yet to remain tolerant and flexible. The field drainage basin committees are composed of local officials representing all walks of life, all levels of government, all interests of their particular drainage basin areas. They have the local problems and the local viewpoint at their finger tips.

On an average drainage basin committee the Department of the Interior, for instance, is represented by a group of field officers from the major land use bureaus of the Department, namely, the National Park Service, Bureau of Reclamation, Geological Survey, Office of Indian Affairs, General Land Office, Fish and Wildlife Service, Grazing Service, and Bureau of Mines. This group is called the Interior Department panel, or subcommittee. A chairman and a vice chairman for the panel are designated from among the group by the Department in Washington. These two speak for the others during actual committee meetings, although they have the privilege of calling in any or all other members of the panel for special discussions when necessary or desirable. All of the other agencies—public, semipublic, and private—which are represented on the committee operate in a generally similar manner.

The committee chairman is always one of the officials of the National Resources Planning Board's regional organ-

ization. His work is to assist in bringing practical realism into all plans, to promote the correlation of activities, and generally to inspire progress. He has no power to decide, execute, or administer drainage basin plans, but he must be widely informed as to the resources in the drainage basins of his region and able to arrange successive committee meetings so substantial conservation objectives are revealed, justified, and recorded systematically for the further enlightenment and use of all committee members.

The minutes of the committee meetings are filed with the panel chairmen and their associates, each of whom transmits the minutes, plus his own statement if he has something to add, to his advisers within his own organization. Suggestions, recommendations, and trends in the work are thus pictured for the administrative leaders at the top of the agencies whose field representatives make up the committees.

The National Resources Planning Board Regional Committee chairmen formulate agenda for meetings from the recommendations of the various committee members, circulate notices, and require panel chairmen to see that the agencies they represent provide such data as is necessary to bring out their respective aims and integrate them with others in the program as a whole.

It is the full and constant understanding between field representatives who are doing the talking in committees, and their advisers who are framing policies for the field, that is, bringing maturity to this drainage basin committee work. It is a matter of continuous mutual education all around.

When the work was started several years ago it had to sell itself. There were but few people who saw what a remarkable opportunity it presented for public enlightenment concerning the vital water conservation requirements in all of our drainage basins. The experience has been that from a small beginning, largely among technicians in the water resources field, there is evolving a practical realization among experts and laymen in many fields—agriculture, manufacturing, merchandising, education, transportation, and recreation are examples—of the narrow escape we are having in this country from impoverishment of the resources in our river valleys. There also are being evolved some pretty good ideas on what to do about the situation, which are being advocated by legislative, financial, and construction experts whose opinions are pooled and crystallized in the drainage basin meetings.

Last Autumn, in Boulder City, Nev., the Upper and Lower Colorado River Drainage Basin Committees, and the long-established Governors' committee for the Colorado River Basin States, held a joint meeting. Present were six Governors and the special representative of another. Technicians, business men, and civic leaders from all over the country were there, about 80 people in all. All of them understand the technique of drainage basin committee work. All of them have serious problems in their own

particular areas. They are all aware of each other's situations because they all know that the wise management of natural resources, considered and handled by natural drainage basin units, is a mutual responsibility and the only means foresighted enough to insure social and economic salvation for the individual. They know the economy of the individual must be preserved, or else the whole social structure falls.

There is nothing munificent about this concept of planning for human welfare through committees of river valley people. It is a case of necessity. We all know the story of how we have gone on and on in this country, exercising individual rights to land, water, forests, grass, etc., until, with an increased population, which means increased competition and more intense use of all resources, we can just about see that some of them will be exhausted entirely if they are not stabilized.

On the other hand we know for example how the relatively new Taylor Grazing Act is stabilizing grazing; that the Boulder Canyon Readjustment Act and the Wheeler-Case Act are recent progressive measures to stabilize the use of water; that the Park, Parkway, and Recreation Study Act gives substance and stability to our national recreational outlook. The drainage basin studies keep people posted in all these matters, and point out new dangers, new requirements. When your banker, governor, lawyer, forest supervisor, park superintendent, et al., attend their drainage basin committee meetings, they are often facing embarrassing truths about human wastefulness; and helping save skins, in spite of us, because they know that it is through saving ours that there is any need to save theirs.

The National Park Service is represented on all 46 drainage basin committee districts. Eighteen field officers of the Service are assigned to this work as panel members on one or more committees. All of these men are in constant travel status, and they are all engaged for the Service primarily in recreational planning, which keeps them in touch with local activities of all kinds. Their drainage basin committee work is particularly advantageous since it brings them in such close contact with the administrators of those many enterprises, which, collectively, constitute the business of living; and, to the recreation planner, show how and where his work is one of life's essentials.

Planning studies now being conducted for the Colorado River Basin present a typical example of the National Park Service's participation in the work. This great river valley includes parts of seven States and a small portion of Mexico. Because of the interstate and international character of the Colorado, and the aridity of the region through which it flows, there are many complex problems involved in working out a comprehensive plan for the utilization of the waters of the main stream and its tributaries.

Activities within the basin depend largely upon agriculture through irrigation, and consequently the demands for water for this purpose are heavy. In addition, the Colorado

has immense value for power production. Both of these aspects are of interest to people living far outside of the basin.

The recreational implications of the Colorado River are well known. For years Grand Canyon National Park in northern Arizona, embracing the greatest canyon of the Colorado, has been the objective of millions of visitors from all parts of the earth. Other portions of the Colorado River country likewise are prominent recreational attractions, tangible factors in the basin's economy. At least one portion, the Escalante area, though still little known will eventually become an outstanding national attraction. This area encompasses a relatively narrow strip along both sides of the Green and Colorado Rivers from the vicinity of their junction west of Moab, Utah, south to the Arizona-Utah line. This is a land of vivid scenery. Canyons along these rivers vary greatly in width, from perpendicular walls to sweeping slopes whose upper escarpments are more than 20 miles apart. Splendid examples of weather and water erosion are represented in countless fantastic shapes and forms of rock throughout these canyons.

Federal, State, and local agencies concerned with the future of the Colorado Basin have had the National Park Service present its proposal for the Escalante area through the Colorado River Drainage Basin Committees. The following is an excerpt from a recent presentation:

"Recreational resources of the Colorado River Basin are internationally known. Any plan for the coordinated development of the basin's resources must recognize that asset. Coordinated development of the basin should provide opportunity for the maximum use of each resource.

"It is recognized that available water and power are fundamental in the basin's growth. It is recognized, also, that mineral, forest, and range resources must be utilized. The studies now being conducted should result in a wise exploitation of all of the resources, so that each development would be supplemental to the others in the basin's economy.

"It would not be justifiable to advocate the exploitation of one resource without regard for the effect of such exploitation upon the others. Overgrazing, for example, which results in soil erosion, floods, impoverishment of forests, range, and all other affected resources, cannot be advocated as wise land use. There must be a correlation of the uses, if the maximum benefits are to be achieved.

"It is upon this general basis that the National Park Service offers cooperative assistance in the drainage basin studies.

"The proposed Escalante reserve embraces one of the little known but most spectacular scenic regions in the United States. Its water control potentialities may prove to be important. Its recreational assets can become a significant factor in the economic development of the basin. It may be possible that the water control and recreational factors can be developed coincidentally. The plans



eventually formulated should rest upon a carefully considered appraisal of all of the resources involved, and the relative importance of each should be determined.

“Legislative measures could be sought, and widely supported, to establish the Escalante area as a national recreational area, with adequate provisions assuring future development of water and power resources, when such projects are found feasible and duly authorized. Such legislation could prevent damage to a major State asset, the recreational resources.”

The Escalante case is just one example of how recreation is considered in drainage basin committee work. There are many other possibilities being considered throughout the country as you read this article.

What the future holds for recreation in drainage basin studies depends entirely upon the imagination, the conviction, the courage, the sincerity, and the durability of the recreation planner. His is the job of identifying the recreational resources among all the other resources; of evaluating them, and promoting their public usefulness. He interprets the cultural luster of the land in which we live. He seeks to organize into a permanent, publicly owned system the essential areas which exemplify the American scene, its natural history, its physical beauty, its outstanding human events—in short, its great over-all recreational usefulness. The drainage basin studies provide one of his finest opportunities to explain his objectives and, we believe, to secure their appropriate support.

## WILDERNESS VALUES

by ALDO LEOPOLD, *Professor of Biology, University of Wisconsin*

THE SOCIAL VALUE of any experience is determined by the number who participate times the intensity or quality of their participation.

In measuring the value of recreation, we are so obsessed with the numbers who now participate that we have forgotten all about the intensity or quality of their experience. This obsession is especially prevalent in the land-owning bureaus, which justify their mounting costs and expanding domain by their mounting public patronage. What the public gets from the parks and forests is assumed to be sufficient. Is it?

Wilderness is valuable because it enhances the quality of what the public gets. But wilderness shrinks as motorized recreation expands. This is the wilderness problem.

No man is wise enough to say at just what point the loss in quality of recreation outweighs the gain in quantity, but any man with half an eye can see on which side of the scale official leadership should throw its weight. The parkward hegira of the landless needs no prodding; whether we will or no it is upon us, like an army with banners. From now on it is quality, not quantity, which needs the attention of far-seeing administrators.

To think straight on recreational quality, an historical perspective is essential. Let me suggest that every park superintendent and every forest supervisor read a recent novel by Conrad Richter called *The Trees*. It describes the life of a pioneer family in the virgin wilderness of Ohio. This family was literally soaked in a wilderness environment of a richness unknown to us, yet that wilderness narrowed rather than widened their minds. Why? I do not know the whole answer, but I can see at least two reasons. One is

that there was no contrast; no alternation of sociality and solitude. The other is that there existed at that time no perception of the wilderness as an organic process. Wilderness has acquired a value not only because it has become scarce, but also because we can get in and out of it, and because we can (if we take the pains) perceive a little of its inner workings.

The value inherent in contrasting environments is too obvious to need discussion. I need only remark that the whole trend of wilderness use and administration is to break down the rich contrasts between wilderness and city life. The recreationist arrives in the wilds draped and festooned with gadgets, each tending to destroy the contrast value of his vacation. I am not such a purist as to disdain all of them, but I do claim that the presence or absence of gadget inhibitions is a delicate test of any man's outdoor education. Most tourists have no gadget inhibitions whatever. Witness now the rubber boat for fishing the last virgin trout hold!

In the same category are the sign-boarded trail, the synthetic fireplace, the piped spring, the pink and green map, and the conducted tour which the well-intentioned administrator sprinkles in the “wilderness” path. Again I do not disdain all of these facilities; I simply claim that the presence or absence of facility inhibitions is a delicate test of administrator education.

Gadgets, however, are of slight consequence. What matters is our ability to see the land as an organism. Most civilized men do not realize that science, in enabling us to see land as an organism, has given us something far more valuable than motors, radios, and television. It is the intellectual exploration of land, including aboriginal land or



wilderness, that constitutes the frontier of the present century. Unless we can see the full gamut of landscapes from wild to tame, we lose a part of our explorer's birthright.

Columbus surmised that it might be only a few day's walk across the continent to the riches of the China seas. His successors, the pioneers, took 350 years to break through to the Pacific. When they got there they found that the riches were not in the China seas at all, but on the continent they had explored en route.

Just so do we, the forerunners of ecological exploration, surmise that a few classes in "nature study" will lead us across to the riches of perception. Our successors, I hope, may find it a longer task. When they at least break through they may find that the riches lie not at their destination, but en route.

The modern ecologist with a flair for history, for drama, and for esthetics, perceives perhaps only a hundredth as much as he might. The average tourist, I fear, perceives close to nothing. The quality of recreational experience, then, brackets a wide range of values. The problem is how to raise the bracket. Better administration of wilderness will become possible only as a higher level of perception is achieved.

One dead weight which depresses perception is the false belief that higher perception means studies rather than sports. We administrators do our best to perpetuate this fallacy by delegating educational functions to nonsporting people. As a matter of fact there is no higher or more exciting sport than that of ecological observation. If anyone doubts this, let him read Fraser Darling's *Wild Country*, *Naturalist on Rona*, or *A Herd of Red Deer*.

This same false cleavage between studies and sports explains why the Natural Area Committee of the Ecological Society does not cooperate with the Wilderness Society, though both are asking for the perpetuation of wilderness. "Serious" ecological studies of a professional nature are, of course, important, and they of course have a place in wilderness areas. The fallacy lies in the assumption that all ecology must be professional, and that wilderness sports and wilderness perception are two things rather than one. Good professional research in wilderness ecology is destined to become more and more a matter of perception; good wilderness sports are destined to converge on the same point. A sportsman is one who has the propensity for perception in his bones. Trigger itch, wanderlust, and buck fever are simply the genetical raw materials out of which perception is built.

The most convincing proof that ecological perception has not yet spread beyond the self-erected walls of science lies in the fact that there is as yet no expression of ecological drama in art or literature. Peattie's novel, *A Prairie Grove*, is proof that ecology may, some day, escape into the common life of common people.

An administrator of public lands containing remnants of wilderness should be aware of the fact that the richest

values of wilderness lie not in the days of Daniel Boone, nor even in the present, but rather in the future. The administrator has a double responsibility; to keep some wilderness in existence, and to cultivate its qualitative enjoyment.

Keeping wilderness in existence is a task beset with subtle and unexpected difficulties. Defense of the wilderness was once conceived to be defense against frontal attack from road builders and promoters of recreational ciphers. I am impressed by the fact that many of the recent splittings and chippings of wilderness areas have been induced not by motor-minded promoters, but by mismanaged herds of deer and elk. Deprive a herd of ruminants of its cougars and wolves and you reduce all wilderness covenants to scraps of paper. Deprive it also of natural winter range, and then lock it up in a refuge or park, and you have a sure-fire explosion in the making. No executive proclamation or even law of Congress can protect a wilderness thus set up.

I am likewise impressed by the fact that while many administrators have acquiesced in the establishment of wilderness areas, few have exerted ingenuity in making them serve as many purposes as possible, nor have the landowning bureaus cooperated to such ends. For evidence I cite the precarious status of the grizzly bear, who has no sure citadel for the future, despite the millions of acres of forests and parks dedicated to wildlife conservation. What wildlife? Is it too much to ask that the bureaus get their heads together and map out some really adequate wilderness ranges for threatened species like the grizzly? Or to spend a few dollars to consolidate such ranges and clear them of alienations? Why not substitute some interbureau planning for the present interbureau wars?

One of the symptoms of immaturity in our concept of recreational values is the assumption, frequent among administrators, that a small park or forest has no place for wilderness. No tract of land is too small for the wilderness idea. It can, and perhaps should, flavor the recreational scheme for any woodlot or backyard. Of course such small wild places lack the scarcity value of large ones, and should not constitute an excuse for sacrifice of large ones. Small areas are not wild in any strict ecological sense, but they may nevertheless add much to the quality of recreation. We all have, or ought to have, that aptitude for illusion which enables small boys to fish in washtubs.

One of the most discouraging aspects of many parks and forests recently developed by relief labor is the wholesale and needless sacrifice of wild elements in the landscape. To many sensitive minds the worst fate that could befall a favorite recreation or study area is its incorporation in a park or forest. If this seems too jaundiced an arraignment, let me tell of a "wild" river bluff which until 1935 harbored a falcon's eyrie. Many visitors walked a quarter mile to the river bank to picnic and to watch the falcons. Comes now some alphabetical builder of "country parks," and

dynamites a road to the river, all in the name of "recreational planning." The excuse is that the public formerly had no right of access, now it has such a right. Access to what? Not access to the falcons, for they are gone. Just so does the quality of wilderness fade before the juggernaut

of mass recreation. If forestry and recreational engineering are entitled to professional status, has not our employer, the public, a right to demand of us some degree of skill and resourcefulness in preserving the quality of wild areas despite mass use?

## "BLITZKRIEG" FIRE FIGHTING

by J. S. BARROWS, *Associate Forester, National Park Service*

AUGUST 1940 will long be remembered in the history of Yellowstone National Park. And it will be remembered equally as long by the protection forces of the National Park Service, for during that month a modern "blitzkrieg" was waged against the greatest enemy of park and recreation progress—the forest fire.

The events of recent months have made the term "blitzkrieg" bring visions of a powerful, sinister machine rolling swiftly forward to destroy anything that resists its march. Here is the story of a "blitzkrieg" that marches not for the purpose of destruction but to protect forests, to save wildlife, and to preserve one of the greatest heritages of American life.

The midsummer of 1940 brought a hot sun and long, cloudless days to the northern Rockies. With each passing day the forests became drier. As the fire danger mounted the first phase of the "blitzkrieg" was made ready for action. Emergency fire lookouts were manned, CCC fire crews were drilled and held ready for action, fire guards patrolled remote sections of the vast Yellowstone wilderness, and rangers intensified prevention efforts in warning the record crowd of park visitors to take every precaution with fire.

The stage was set for whatever might come. Suddenly on the evening of August 9 the firing began. One after another a series of huge thunderheads rolled across the sky over the rugged Pitchstone plateau country in the southwestern part of Yellowstone. Just before sunset the clouds began to spit out lightning like a fleet of great bombers in full attack. Flash after flash told the story of fire being shot from the sky to the tinder-dry forests. Then the evening winds mounted and the clouds moved on without shedding rain to accompany the barrage of lightning.

Within a few minutes after the first bolt had struck, the office of the park fire dispatcher was deluged with calls from the fire lookouts. By shortwave radio and telephone came messages of fires breaking out in the vast park forests. It was soon evident that a major fire emergency was in the making. Before the evening was over the fire dispatcher's

map was dotted with red pins, each one marking the location of a blaze that had been reported during the twilight hours. There was every likelihood of more fires being reported in the morning when the lookouts could get a better view of the territories within their vision. Still other smokes might be detected by patrolmen working in the country blind to the lookouts.

The army of fire fighters went into action according to predetermined plans and using methods practiced during training drills conducted earlier in the season. First, the nearest available rangers, fire guards, and smokechasers were dispatched to the fires. Quickly behind them came the CCC fire crews. Trucks began to roll carrying food, supplies, and fire equipment to the ends of the roads where mule strings were held ready to pack the important cargoes on to the men on the fire lines.

By the middle of the next day the battle was in full swing on a dozen fronts. Scouts mapped the fires and gridironed the country for any undetected smokes. Airplanes droned overhead as equipment and supplies were parachuted to the fire camps that were springing to life in the back country far removed from roads and trails. Radio operators were busy sending important messages to and from the fire lines. Fire bosses carefully worked out the strategy for the mounting tide of the battle with the flames. Trained fire crews went methodically to work. Motors whined as portable pumps started to drench danger spots with water.

But in spite of these efforts the scorching August sun and the hot southwest winds continued relentlessly to drive the flames on with their death-dealing work. The fires were still in the back country, but their ugly snouts were pointed toward some of the priceless treasures that have brought visitors to Yellowstone from the far corners of the earth. One fire was driving toward Old Faithful geyser. Another was headed toward the western shores of Yellowstone Lake. A third threatened to sear the picturesque scenery along the road leading from Yellowstone Lake to the Grand Tetons. Still another endangered the unspoiled beauty of the Beehler River canyon. The rising sun on August 13 painted



a weird, red glow over the smoke-covered forests. By noon six of the fires were belching up great mushroom-shaped clouds of smoke. Like handwriting in a cheerless sky they told of the battle at hand.

The fire-fighting "blitzkrieg" must now be unleashed to deliver the mightiest blows within its power. With every available CCC enrollee already on the fire lines the suppression forces were augmented by crews of hired fire fighters recruited from towns surrounding the park. Under the terms of a previously enacted cooperative agreement further assistance was obtained from the United States Forest Service as squads of trained fire bosses from adjacent national forests took places on the battle fronts alongside of the Park Service men. Foresters from the regional and Washington offices and rangers from other national parks arrived by airplane to fill overhead positions in the far-flung organization. Back at park headquarters a staff including both men and women worked day and night coordinating activities and keeping the service of supply moving.

The full significance of the "blitzkrieg" could now be realized as it moved forward to trap the flames. First came the reconnaissance units with scouts in the air and on the ground mapping the progress of the fires, locating barriers and fire camp sites, and planning strategy. Next came the "Panzer" divisions with power equipment and hard-driving line construction crews pinching in the fires. Detached from these divisions were small squads which tracked down the spot fires outside the main control lines. Behind were patrol and mop-up forces occupying the territory where the fire lines had been completed. And back of the combat forces another division of the fire-fighting army labored to maintain the communication and transportation lines. Even the engineering phase of "blitzkrieg" operations came into play as it was necessary to bridge some of the wild streams of the Bechler River country.

After days of intensive fighting victory was reached. The large fires were harnessed and many other smaller blazes were controlled before they could generate power for wide spread damage. But the fire fighters paid a price for their conquest. The surging tide of the flames was stopped only after over 110 miles of fire lines had been constructed and thousands of man-hours had been spent scouring the forests to track down the smallest wisp of smoke and tramping through the burns to extinguish every smoldering ember. Over 20,000 acres had suffered from the fury of the flames. But by their tireless efforts the fire fighters had saved untold thousands of acres for the enjoyment of great numbers of future visitors who will find inspiration and recreation in the green forests. Unlike the popular conception of a "blitzkrieg," here was one which had brought protection rather than destruction.

This story of fire fighting is not necessarily unique as a conservation activity in America's recreational areas. Although this battle was more spectacular and had to be conducted on more of a mass scale than the usual run of

fires, it was by no means the only event of its kind. It serves as a good example of how "blitzkriegs," both large and small, are being waged against the arch destroyer of the people's forests.

Every year throughout the Nation it is necessary to enter into full battle with the No. 1 enemy of outdoor recreation. The threat of forest fires is a stark reality that must be faced squarely by every individual or group connected in any way with park and recreation work. This is all important because this is a fight which seeks to preserve the very things that constitute a park and make outdoor recreation possible.

It is not necessary to dig very deep into the records to grasp the magnitude of the forest fire problem. Each year in the United States about 200,000 fires occur, burning nearly 32,000,000 acres. This is an area greater in size than the combined area of the States of Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New Jersey, and Maryland, with the District of Columbia and Manhattan Island thrown in for good measure. In the national parks and monuments during the 10-year period from 1930 to 1939, 3,391 fires burned 73,243 acres. Although adequate statistics are not available for all other recreational areas, some idea of the problem can be obtained from incomplete fire records in the State parks and recreational demonstration areas. During 1938 and 1939 the State, county, and metropolitan parks in Region 1, in which the National Park Service is cooperating in development work, fought 514 fires that burned 180,782 acres in or adjacent to the projects. During the first 9 months of 1940, 20 recreational demonstration areas in 14 States reported 94 fires and a loss of 2,993 acres inside of the projects. In addition each year hundreds of fires threaten recreational areas in the State and National forests and on other lands throughout the Nation.

These figures reveal only a part of the fire protection job in the Nation's recreational lands. The real story is told in terms of blackened trees, depleted wildlife, ash-laden streams, and gutted landscapes. Those who have witnessed the red menace at work and have viewed the resulting damage to recreational values have a better picture of the problem than can be presented by columns of statistics. Rightfully, they ask what is being done to check forest fires. Thoughtfully, they want to know what progress has been made in reducing the stigma that fires place upon the very things that make people seek enjoyment in the outdoors.

The present-day realization of the havoc that may be spread by forest fires and the widespread efforts that are being made under the national conservation program to control them are beginning to bring results. Turning to another page in the records, it may be found that progress in fire control is on the march. In the national parks and monuments the area burned per million acres protected during the period from 1935 to 1939 was reduced to an average of 527 acres annually as compared with 1,479 acres annually for the previous 5-year period. The fire-preven-



tion program in the same areas has reduced the number of fires caused by smokers and campers to one fire per 67,936 visitors during the 1935-39 period as compared with one fire per 37,901 visitors from 1930 to 1934.

Progress in fire protection is likewise encouraging in other recreational areas. Since 1933 in the State parks, National Park Service CCC camps have contributed over 700,000 man-days to fire prevention, presuppression, and suppression jobs. In addition, the CCC has fostered better State park fire protection through fire hazard reduction work on 175,000 acres and along 4,500 miles of roads and trails. The CCC-constructed firebreaks in these parks would reach across the Nation from New York to San Francisco.

These advancements likewise cannot be appreciated when viewed only from pages of figures or glowing descriptions that may be dug from the files. Out on the land the forward march of fire control is fully tangible. It is providing unspoiled green forests for camping, tree-fringed trails for hiking, more even-flowing streams for fishing, abundant wildlife for hunting, and scarless landscapes for inspiration. The continuation of these activities of outdoor recreation requires a sustained yield of normal forest growth and the progress in fire protection work is removing the main obstacle which might block the fulfillment of that requirement.

The broad plan of fire control in America's recreational areas is based upon a threefold program of fire prevention, presuppression, and suppression. The fire prevention phase of the program strives to reduce the number of man-caused fires. Work being done includes posting signs, constructing fireplaces, enforcing laws, and conducting a widespread educational campaign. The fire presuppression phase, which includes all preparations made prior to the outbreak of a fire, calls for the erection of lookouts, the construction of roads and trails, the maintenance of telephone lines, and a thousand and one other general preparedness jobs. In the suppression phase the plans are directed toward the control of every fire with the greatest possible dispatch.

Although the results in all phases of this program are encouraging, it must be recalled that America is still faced with nearly 200,000 fires a year and that many of these are dangerous threats to the parks. With these cold facts looming up as they do, it is acknowledged that the work must go forward with even greater vigor. Where will this added punch that is needed in the fire-control program be found? Fire fighters say that the knockout blows may be delivered by "blitzkrieg" fire fighting.

What is "blitzkrieg" fire fighting? In simple terms it is nothing more than a complete coordination of all phases of fire-control work which allows powerful lightninglike thrusts to be directed at everything that may cause a forest fire to start and spread. This means that the major activities of fire prevention, presuppression, and suppression must continue to go ahead as usual. The actual "blitzkrieg" phase of the operations is accomplished by a comprehensive training program that prepares every individual and every unit connected with the various phases of fire control to strike

at the enemy at any time with a superefficient machine.

Training is the activity that makes "blitzkrieg" fire fighting possible. Lightning warfare against the flames is not possible unless every man is prepared to do his part in the most precise manner. The training of fire-protection personnel is just as important to fire-fighting work as the training of soldiers and sailors is to the Army and Navy. Machine guns and tanks do not function without skilled operators, nor do battleships and bombers chart their courses without trained navigators. In the same manner fire-lookout towers cannot detect fires without alert observers; portable pumps will not send water against the flames without the guidance of skilled hands; and fire crews cannot march expertly into a battle without the experience of training drills. And above all else, none of these units can function as a smooth team unless its activities are carefully coordinated through the medium of a comprehensive training program. Training is a kind of insurance to protect the investments already made in fire control and it is now providing the spark that has been needed to start total warfare against the ruthless invader of our forests.

During the past several years the National Park Service has been conducting fire-protection training schools throughout the Nation. These schools have been held from the forests of Maine to the brush lands of southern California. They have dealt with fire-control methods to be used in the wilds of the northern Rockies and the piney woods of Florida. They have been attended by rangers from the national parks, conservation workers from the State parks, superintendents and foremen from CCC camps, and protection personnel from the recreational demonstration areas. Their programs have included instruction in everything from the use of an ax to the operation of short-wave radios. They have often provided a meeting ground where officers from many Federal, State, and county agencies can pool their ideas and develop a coordinated plan of action.

The fire schools have gone far in developing the type of machine that is needed to conserve green forests for outdoor recreation. They have developed lookout observers who are skilled in map reading, in the use of fire finders, radios, and binoculars. Sometimes they have even given these men lessons in cooking and housekeeping. Crews have been drilled in new methods that make high-speed fire line construction possible. Fire guards have received instructions in woodmanship and have learned how to track down the smallest wisps of smoke in vast forests. Supervisory personnel have been trained in foremanship and have practiced modern methods of directing the work of fire suppression crews. Fire bosses have studied various types of strategy and have put them into practice in attacks made on dummy fires. Men have been trained in packing mules, in setting up field kitchens, in sharpening saws, in using a compass, and in dropping supplies with parachutes.

Even such an intensive program does not fully prepare the protection forces in our recreational areas to wage total warfare on forest fires. There are still some missing cogs

in the machinery. One of these important cogs is the development of adequate reserve strength. In nearly every serious fire emergency it is impossible for the park or recreational area affected to muster enough strength from its own organization to cope with the situation. In fact, it would be economically unsound to attempt to build up each local fire organization to such strength that it could deal knockout blows without outside aid to any fire or series of fires, no matter how large and potent they might be. The size and cost of such an organization in some of the high hazard parks would be tremendous.

The most serious shortage of reserve strength is usually a lack of sufficient well-trained overhead to supervise the fire-control operations. It is generally possible to obtain reserve fire fighters to handle the ax and shovel jobs on the fire lines. But men who are qualified to perform the intricate duties of a fire camp boss, to give the leadership that is demanded of a fire line foreman, or to handle other overhead assignments such as scouting, transportation, and communication are as scarce as 10-dollar bills in the blind-man's cup.

There is, however, a logical solution to the problem of recruiting and training this necessary reserve overhead. In the parks and recreational areas of America and on the staffs of the agencies doing recreation and conservation work are hundreds of employees who could very well become reserve fire officers. These men pride themselves as conservationists. Their jobs usually require familiarity with the outdoors. Almost to a man they have a deep love for the work they are doing in developing and protecting the Nation's recreational resources. Why, then, cannot these men be recruited and trained to fill the overhead positions that are so vital when fire thunders toward our most priceless park and recreation values?

Conscription should not be necessary to obtain the trainees for this phase of the fire-fighting operations. The eligible men fully realize the potency of the enemy they are to fight. They know that by enlisting for fire protection training that they are engaging in a most vital conservation activity. And as reserve officers in the fire-control corps they should be proud that they are doing their part to prevent the further invasion of flames into the people's forests.

Another missing cog that is needed in the modern fire-control machine is fire prevention. In spite of the widespread efforts that have been exerted for years to reduce the number of man-caused fires, 90 percent of the forest fires are still started by man and are therefore preventable. The carelessly flipped cigarette, the unextinguished match, the smoldering pipe heel, the unattended camp fire, the unwisely started debris fire, and the lawless hand that deliberately spreads flames to the woods are still uncontrolled forces that must be stopped if a full victory is to be reached.

Never was there a time when fire prevention should be more timely than it is today. The thoughts of every patriotic American are devoted to the protection of his country. The careless and malicious destruction of our forests is a definite threat to a resource that is all important in national defense. Those who are responsible for this inexcusable waste are the "fifth columnists" of America's forests. A mighty division of the fire-fighting "blitzkrieg" must be organized to deal with the potent forces that are responsible for nine-tenths of our fires. Enlisted in this division should be every conservation and recreation worker in the Nation. They should be trained to secure public good will, to educate others, to appreciate potential hazards, and to assist in apprehending the deliberate violators of the fire laws. Above all else, they must pave the road toward the goal in this campaign by setting a good example in the use of fire for others to follow.

This is what is meant by "blitzkrieg" fire fighting. There are perhaps some people who do not like even the sound of the word which describes this new-born warfare on forest fires, for it brings to them ugly pictures of ruthless invasion and merciless destruction. In the same vein, neither do the protectors of America's recreational lands like the sight of blackened hillsides and dead forests. For many decades they have fought this enemy. Through bitter experience they have felt the power of its smashing blows. They know that their own return blows must be delivered with lightning speed and carry a knockout punch. They feel that if "blitzkrieg" tactics will turn the tide by all means these tactics should be used. And they are proud that their type of "blitzkrieg" protects rather than destroys and that it preserves the things that foster a healthful and peaceful life for the American people.



Fire fighters say that knock-out blows to conflagrations like this may be delivered by "blitzkrieg" fire fighting.

*(National Park Service Photo.)*



In "blitzkrieg" fire fighting, equipment and supplies are parachuted to fire crews from airplanes.

*(National Park Service Photo.)*



Ground movement of supplies by pack strings is also part of the plan.

*(National Park Service Photo.)*



If fire fighting is neglected, the result is this: recreational opportunities are lost.

*(National Park Service Photo.)*





*Left: Herndon Dowling, Virginia Natural History Institute Class of 1940, discusses reptiles with junior leaders of the Richmond Recreation Department.*



*Right: Students on a geology field trip to quarry near Swift Creek, Virginia.*



*Mrs. Avis Oliver, Virginia Natural History Institute student of 1940, instructs a group of young visitors to Swift Creek Recreational Demonstration Area.*

# THE VIRGINIA NATURAL HISTORY INSTITUTE

by REYNOLD E. CARLSON, *Nature Specialist, National Recreation Association; Director, Virginia Natural History Institute, 1940*

A SIGNIFICANT leadership training program for nature recreation leaders was inaugurated during the summer of 1940 by the Virginia Natural History Institute. The Swift Creek Recreational Demonstration Area, 4 miles south of Richmond, provided the setting. Instruction was provided by representatives from the National Park Service, the National Recreation Association, the University of Richmond, the Virginia Fish and Game Commission, the Fish and Wildlife Service, and other groups and agencies. The students were gathered from park, recreation, and education fields.

The institute developed as a result of the need for adequate leadership to keep pace with the recent rapid expansion in areas and facilities. Park and recreation executives have become increasingly aware of the desirability of interpreting outdoor values to the general public.

It is the common complaint of many who plan park facilities that the public does not appreciate what has been provided. Vandalism, crowding into small citylike sections of the parks, participation in types of activities that could just as well be participated in within a crowded city are but a few of the indications of the lack of appreciation on the part of many who visit our parks. It is often the case that we do not appreciate the thing that we do not understand. If we know something of the problems of developing park facilities, we appreciate good facilities more. If we know something of the natural or human history of an area we appreciate that area more. Part of the task of the program planner, then, is that of informing the public of what is offered and providing some type of interpretation for those who desire it. It must, however, be recognized that many come to parks to rest and have no desire to have programs planned for them. We have no right to impose programs but should rather anticipate needs and satisfy demands.

Recreation programs in parks should be fitted to each situation. Activities in the natural wooded park area might not suit the carefully landscaped sections of city parks. Each area should be used for the purpose for which it is best suited. All park areas should, however, provide the opportunity for the enjoyment of the beautiful and for the development of an appreciation and understanding of the world of nature. Nature recreation of one type or another, either unorganized or organized, is consciously or unconsciously a part of every park program.

The American people of today have lost their ancestral contact with the soil and with the more real aspects of life associated with nature. One of the purposes of parks is to provide the opportunities for a renewal of the contacts

which have been so important in the history of our race.

If we are to establish an adequate program of use for our areas we must secure adequate leadership. Not only are park people concerned with this problem; it is also one of prime importance in municipal recreation departments, schools, and social agencies.

Schools in recent years have been turning more and more to a type of instruction designed to develop an understanding of the environment in which we live and an interest in the conservation of America's natural and human resources. Schools are entering the camping field, providing outdoor study areas, and teaching at least a part of natural history in its logical outdoor setting. Many teachers called upon to teach natural history and related subjects have not had the necessary background. They need outdoor experiences to help them interpret to their classes the natural life around their own schools.

The need for trained leadership is likewise apparent among recreation workers. At the annual meeting of the Society of Recreation Workers of America in October 1939, it was decided that the society would take as a project for 1939 and 1940 the development of nature recreation programs in municipal recreation departments throughout the country. Many municipal recreation executives pledge themselves to make certain concrete efforts to inaugurate or strengthen nature programs and to initiate projects in this field. But the lack of adequately trained leaders was a handicap. It is difficult for a recreation leader who has had no background and no opportunity to participate in nature recreation programs to carry on an adequate program with others.

It was with these needs in mind that the leaders' training course was inaugurated in the summer of 1940 by the Virginia Natural History Institute at the Swift Creek area. The course, of four weeks' duration, was a cooperative venture sponsored by the National Park Service, the National Recreation Association, the Virginia State Conservation Commission, and the Richmond Professional Institute of the College of William and Mary. Its purpose was "to provide training and practical field experience to leaders and prospective leaders for park, recreational, and camping agencies and educational institutions."

The course was administered by a board of directors under the chairmanship of Malcolm Engstrom of Richmond. Others on the board were Miss Catherine Van Horn (secretary of the board), Dr. Sidney I. Negus, Dr. Sidney Hall, Mr. Charles Pollard, Dr. E. C. L. Miller, and Dr. Latham Hatcher.

University credit was granted by the Richmond Profes-



sional Institute of the College of William and Mary to students satisfactorily completing requirements. Four credit hours in nature education were given.

Twenty-one students from nine States and the District of Columbia were registered. Seven came from North Carolina, five from Virginia, two from the District of Columbia, one each from Pennsylvania, Arkansas, Indiana, Mississippi, Georgia, Alabama, and New York. Included among the students were National Park Service employees, supervisors in city parks and recreation departments, teachers, and college students. Many of these already were employed in situations to which materials gained from the school could be directly applied.

The students were: William A. Bryson, supervisor of recreation, Richmond; Lanchester D. Burling, Raleigh, N. C.; Jack P. Cessna, university student, Gettysburg, Pa.; Donald F. Charlton, teacher, Hollis, N. Y.; Herndon Dowling, university student, Tuscaloosa, Ala.; Daniel Goldnman, university student, Washington, D. C.; Charles M. Graves, State supervisor, National Park Service, Atlanta, Ga.; Cary J. Hansel, Marion, N. C.; Arthur H. Jones, southeastern representative, National Recreation Association, Charlotte, N. C.; Vernon Jones, teacher, Richmond, Va.; Lois Kleinfelter, university student, Norfolk, Va.; Lyle K. Linch, ranger, National Park Service, Jackson, Miss.; Arthur Lucas, superintendent of bird sanctuary, Durham, N. C.; Dorothy C. Miller, teacher, Indianapolis, Ind.; John T. Mullady, university student, Washington, D. C.; Dalton M. Parker, park superintendent, Greensboro, N. C.; Charles E. Prusack, teacher, Arkansas; Edith Settan, teacher, Greensboro, N. C.; Margaret Y. Wall, teacher, Greensboro, N. C.; Earl Southall, naturalist, Swift Creek, Va.; and Avis Oliver, botanist, Swift Creek, Va.

The Swift Creek area provided excellent facilities and an outstanding recreational laboratory. One of the camp units, complete with cabins, two-unit lodges, a craft shop, a nature museum, a combination dining hall-classroom, and an infirmary was made available to the school. The 7,500 acres in the area, with its woodlands, swamp, river, and lakes provided varied plant and animal life for the study of the school. Two organized camps were operating in the area during the school, and these provided opportunities for practice in leadership. The craft and nature programs functioning in the area for the general public made possible the observation of an operating program and gave the students a chance to work with the groups themselves. The picnic and swimming facilities in the day-use area provided further opportunities for the observation of a program in full operation.

Authorities on the various fields of natural history and on park operation took the classes for one or two sessions or for several days. Other outstanding leaders appeared for presentations at the evening campfire program. The proximity of Swift Creek to National Park Service offices in Washington and Richmond made possible the participa-

tion of many authorities from the Service staff. The remainder of the faculty of the institute was composed of representatives of the National Recreation Association, the University of Richmond, the Virginia Fish and Game Commission, the Fish and Wildlife Service, and other agencies. The writer was the only faculty member to remain with the school through all sessions, and it was his task to tie together the varied materials presented by the other instructors.

The daily schedule of the school was designed to provide the maximum of field and project opportunities. The period from 8 to 11 o'clock each morning was set aside for field trips. Some of these trips were general nature excursions; some were demonstrations of types of trips that might be conducted for public groups; and some were taken under the leadership of specialists in forestry, ornithology, botany, geology, etc. It was the purpose of these field trips to acquaint the students with the more common natural history features and to demonstrate techniques of presenting natural history to the general public in an interesting manner. The hour from 11 until lunchtime was set aside as a swimming period, but many of the students availed themselves of this time for study and work on projects. An afternoon lecture period of 1 hour was scheduled to begin at 2:30, but often began earlier. The lecture was followed by a project period from 3:30 to 5:30. This period made possible work on both individual and group projects and also provided time for the students to gain practice in leadership by working with children's groups in the nearby camps. Some of the projects carried on during camp were: Preparation of trailside museum displays; care of reptiles and amphibians kept during the camp period; preparation of labels for a nature trail; collection and classification of insect, geological, and plant specimens; work on nature crafts; and preparation of check lists.

Leadership practice was provided students through one or more sessions with the junior leaders of the Richmond Recreation Department, Girl Scout leaders, Roanoke Girl Scout Camp, Negro Girl Scout Camp, and visitors to Swift Creek.

During the course a simple museum of local nature materials was developed, giving students practice in the preparation of specimens and the interpretation of physical materials. Work in crafts allied to nature—plaster casting of leaves, footprints, etc., construction of displays of animal, plant, and mineral specimens, and the like—was possible in the craft shop. A camp library, with books supplied by students, instructors, the Richmond Public Library, and the National Park Service, made available fairly adequate reference material.

Seventeen evening campfire programs were held during the summer. Students were given turns in directing these programs, some of which were composed entirely of student talent. It was intended that the evening programs be illustrative of the type of activity which might be carried on in park areas with general public groups. Outstanding



leaders in various fields of natural history and park development were speakers at the campfires. The speakers and their subjects were:

Carl P. Russell, Supervisor of the Branch of Research and Interpretation, National Park Service: Perspective in National Park Affairs.

Conrad L. Wirth, Supervisor, Branch of Recreation, Land Planning and State Cooperation, National Park Service: Planning for Recreation in National and State Parks.

Herbert Evison, Assistant Supervisor, Branch of Recreation, Land Planning and State Cooperation, National Park Service: Naturalist Programs in State Parks.

R. C. Robinson, Regional Recreational Planner, National Park Service: Planning Recreation Programs in Recreational Demonstration Areas.

Clifford Presnall, Assistant in Charge of Section on National Park Wildlife, Fish and Wildlife Service: Mammals of the Eastern States, and Movies and Slides of Alaskan Wildlife.

J. B. Williams, Recreational Planning Consultant, National Park Service: Use of Volunteer Leaders in the Nature Recreation Program.

Julian H. Salomon, Camping Specialist, National Park Service: Campfire Programs.

Arthur R. Bevan, State Geologist, Virginia: Virginia's Billion Years.

Guy W. Buller, Fish Culturist, Commission of Game and Inland Fisheries, Virginia: Fish Propagation in Virginia.

Howard A. Hanlon, photographer: Wild Flowers of Virginia.

Arthur Jones, Southeastern District Representative, National Recreation Association: Basis for Recreation Programs.

The daytime instruction, either through lectures or the conducting of field trips and demonstrations, was given by several of the above-listed men: Clifford Presnall, who instructed in conservation and wildlife problems; Carl Russell, whose subject was the interpretative program in the national parks; and R. C. Robinson, who dealt with recreational planning. In addition, the following acted as instructors:

John I. Neasmith, Associate Recreational Specialist, National Park Service: Community Organization for Outdoor Recreation.

W. M. McGill, Assistant State Geologist, Virginia: Museum Techniques.

Ned J. Burns, Chief, Museum Division, National Park Service: Museum Development.

O. B. Taylor, Regional Biologist, Fish and Wildlife Service: Field Biology.

Harold Hawkins, Regional Geologist, National Park Service: Geology, Swift Creek Area.

Stanley M. Hawkins, Associate Recreational Specialist, National Park Service: Relationship of Camping Techniques to Nature Recreation.

Fred Arnold, Regional Forester, National Park Service: Forests as a Background for Outdoor Recreation.

Ralph Smith, Forester, National Park Service: Trees of Swift Creek.

Albert H. Trowbridge, Biologist, Fish and Wildlife Service: Water Life.

M. C. Huppuch, Senior Recreational Planner, National Park Service: Camping Techniques.

John Wendell Bailey, professor of biology, University of Richmond: Biology.

Robert Forte Smart, associate professor of biology, University of Richmond: Botany.

J. J. Murray, ornithologist: Birds of Virginia.

Many of these faculty members spent only a day in camp, but Mr. Presnall was with the school for a full week.

Saturdays were left open for full-day trips and there were three profitable excursions. The first was a tour of Jamestown and Yorktown under the direction of the National Park Service historians in those areas. The buildings at Colonial Williamsburg also were visited. This trip gave the school an opportunity to observe an interpretative program in operation.

The second Saturday consisted of a visit to the Biology Department of the University of Richmond, followed by a tour of the historical sites in that city.

On the third Saturday the members of the school visited Dismal Swamp and took a boat trip to Lake Drummond.

Although this was essentially a training course for nature leadership, it was recognized at the outset that natural history is merely one of the many phases of recreation. Camping, history, woodcraft, physical activities, social recreation, arts and crafts, music, and dramatics all found at least some part in the program. These varied aspects of recreation cannot be separated; rather, they all dovetail.

The activities of the school were not intended to teach only the facts of the various science fields; they were rather organized to illustrate the recreational implications in these various fields and to suggest programs, activities, and approaches to be made in the several situations in which the students later might be working. It was a primary assumption that people through the ages have found satisfaction through contact with the out-of-doors, and that the present social, industrial, and economic situation in America calls for more opportunities for our people to renew their contact with the world of nature.

# THE DESIGNER IN NATIONAL PARKS

by HENRY V. HUBBARD, *Member, National Capital Park and Planning Commission, Norton Professor of Regional Planning, Harvard University Emeritus*

WHAT SHOULD a man know before he can be trusted to design a landscape park? This sounds like foolish question No. 456. Surely he should know landscape design! But, unhappily, there are some people who in all honesty call themselves landscape designers, and some few who have college degrees to prove it, but still they would be a catastrophe to any helpless landscape park that should fall into their power. And there are some others who make no claims to formal training in esthetics, but who nevertheless do what seems to them reasonable in a park, and lo! the result is both usable and good-looking.

Apparently we should check up on what we mean by "landscape park" and by "landscape design" and even by "landscape." Definitions are deceptive. As Confucius might have said, "We do not learn a definition to understand a subject; we have to learn the subject to understand the definition." At least, if you do know a subject, it puts your thoughts in order to attempt to define it.

A landscape park is one primarily valuable for its landscape, its scenery. National parks are set apart primarily to preserve scenery of primeval types. They are "landscape parks" by our definition. But there are other landscape parks where the scenery is in greater or less degree man-made rather than "natural." They are not national parks, but the National Park Service is sometimes concerned with their design.

A good working definition of "design" might be "the art or act of fitting objects and spaces to a purpose." Notice that the purpose does not have to be beauty—though it should be so more often than it is. You may "design" a machine to put on bottle tops just as truly as you may "design" a flower garden. Indeed the purpose of a "design" does not have to be praiseworthy at all to stay within the definition. You may design a surgical instrument to save life, which most people would approve, or you may design an infernal machine to blow up your neighbor's house, which most people would disapprove. We seem to use the words "bad designer" to cover two different cases—one, the man who successfully designs something which he likes and we don't, and, two, the man who fails of his own purpose and produces something which perhaps nobody likes.

Successful design always produces a unity, a fitness of all the parts to make one consistent whole. And our opinion of the success of the design depends, of course, on what we consider the desired whole to be. The facade of a "row house" may be in itself a perfect esthetic design. But a street of such perfect houses, all different and unrelated, would be an ugly street. Each house would be a unity,

but the street would be a mess. On the other hand, a number of houses, no one of which was esthetically notable, might be arranged to make a very good-looking street.

A large design contains a whole series of these constituent designed unities, from little to big. In the grounds of a suburban house, for instance, there might be a group of three plants, a flower bed, a garden, the setting of a view, and finally the whole property related to the house, to the access, to the topography, to the neighborhood. Each is made by the arrangement of smaller things. Each forms a part of an arrangement which makes a bigger thing.

Of course we all have to stop somewhere and admit that there is something bigger which we do not design but which we accept, to which we relate our smaller effort. Else everybody would be designing the universe. The painter usually stops with his picture frame because he has no control over anything more. He does not know where his picture is going to be hung. The architect often regretfully stops his thinking with the outside of his building because he cannot govern what happens nearby. Would that none of us, architects or others, ever stopped because "off the drawing board is out of mind" or because we could not afford to study out the larger probable future unity of which our design might ultimately form a fitting part!

But the good designer of the large landscape park has to go especially far before he stops designing; and when he reaches this largest unity which he controls, he still has to consider that the landscape continues though the park stops. And he has to consider the park's functional fitness to larger unities, to a park system, a metropolitan region, a state, even a nation. Indeed in many cases proper park design begins with these large relations. The first question is not "how do we create a park here?" but rather "under the circumstances where do we do what?"

Now in designing, in arranging materials into a unity for a purpose, you must know the materials and you must know the purposes for which these materials are fit—the kinds of unities which can be effectively created in these special materials. A design in wood is one thing, in iron, another, in the materials of forests, hills, meadows and streams most clearly still another. Plenty of bad park design comes from carrying out in growing vegetation over many acres an arrangement which might not have been bad in a parlor rug. Still greater esthetic and economic crimes come from cutting and filling the ground surface so that a pattern born of the flat drawing board may be stamped upon the face of nature. And observe that almost every designer finally gets set in a kind of design fitted to the materials that he handles. The mature man who has



dealt all his life with straight lines, simple surfaces, rigid materials to which he can give permanently almost any form, is likely to attempt something unfitting when dealing with undulating topography, flowing water and growing plants.

But, beyond all this, there is a still more vital difference between the work of the "landscape designer" and that of other designers. Having thought a little about what we mean by "design" let us consider what we mean by "landscape," a definition which we dodged at first, simply making "landscape" synonymous with "scenery." A definition of landscape might be "the appearance of the land" or "the surface of land and water and the objects upon it, considered as to its emotional effect on the beholder." In its broader meaning, then, "landscape" would include a town as well as a forest, an English countryside as well as a primitive Canadian wilderness. But we have come to think of the essential element of landscape as that which makes it different from the works of man. Even our wretched phrase "landscaping a place" means using growing plants in design. We think of the landscape as essentially a "work of Nature," and certainly in a national park this is true. Of course man himself is a work of Nature, though not always a conspicuously successful work. Still, we can draw a fairly clear distinction in our minds between those things which are predominantly "humanized"—like statues and paintings and houses and cities—and things which are predominantly "natural"—like oceans and wildernesses and mountains and national parks. The humanized things are designed, organized, unified to express the will of man. They are man-made and they look so, and should look so. They have, as we say, a humanized style. The natural things are the result of a plexus of natural forces, in constant or consistently fluctuating relation, which produce an organization of appearance and effect which we recognize as natural character.

Now it is with the preservation of this natural character that the landscape designer has to deal in considering a national park, and usually in considering a "landscape park." He thus starts with an attitude of mind in one respect directly opposite from that of the architect. The landscape designer is just as much bound as is the architect by the requirements of stability and practicality. Like the architect, he also must put before the beholder compositions esthetically effective. But, unlike the architect, the good

landscape designer must think in terms of natural beauty and natural expression. He is often an interpreter, a sympathetic showman, a loving conservator, rather than a self-expressing creator. He builds roads and bridges and houses, to be sure, and they are—and should normally look—man made; but they are not there for their own sake, and usually the less they are noticed the better. They are merely necessary conveniences in presenting the pictures of nature. The national park designer cannot, of course, design the mountains. But, if he is from long and humble study an interpreter of natural beauty, he can present the mountains to the observer effectively. He can even remove small but offensive incongruities. He cannot very much improve the natural landscape; but if he be not sensitive to natural character, if he seek some kind of unity and purpose foreign to the spirit of the natural landscape, then, no matter how good a designer of other things he may be, he may ignorantly destroy a precious heritage which centuries of repentance will not restore.

Herein, then, lies the trouble with trusting a man to handle a national park because he is a "trained designer" or even a "trained park designer." Perhaps he is a trained designer—of houses, or streets, or patterns on paper. Perhaps in truth he has been taught "Park Design," but by someone who thinks of a "park" as a formal public square, and of "landscape" as only a humanized countryside. Perhaps, even, his teacher was really a good landscape designer, but could not "put across" to the student in the schoolroom the feeling for the everlasting hills which the teacher got by years of life in the saddle and under canvas.

Let us be merciful to the teachers. The essential fire of fighting enthusiasm for natural beauty is the hardest thing in the world to transmit in the classroom. Without it no training in pattern making, no training even in logical thinking, will suffice. Perhaps all we can rightly require of the purely school-trained designer is that he knows that there is, beyond his technical and theoretical training, a vital something to learn which he has not mastered.

Let us also be merciful to the parks; and in breeding up the men who are to defend them in the future let us not countenance the monstrous absurdity that "all design is one" and that, therefore, the architect, the painter, the garden maker, the interior decorator, *just because he is a designer*, can design a landscape park!



# WILDLIFE AND RESERVOIR DEVELOPMENT

by RUSSELL K. GRATER, *Junior Park Naturalist, National Park Service, Boulder Dam National Recreational Area*

IN JULY 1940, the first bucket of concrete was poured at the Shasta Dam site in northern California, and the outlines of this great project began to take shape. In a few months there will form behind this structure a huge reservoir similar to those already created, or in the process of creation, by such great dams as Boulder, Bonneville, Fort Peck, and the Grand Coulee. The day on which the construction work is completed and the signal is given to start the formation of the huge artificial lake will mark an important step in the history of Shasta Dam. But, it will also be a red-letter day for myriads of wildlife forms in the region. Before the day is ended, thousands of their number will be dead, and their entire environment changed beyond recognition.

It is not even necessary to guess about the drastic events that will take place at Shasta Dam. Simply go back to the year 1935 and place the scene of action at newly completed Boulder Dam. In June of that year, the cofferdams in Black Canyon were blown out, the diversion tunnels closed, and the swirling waters of the muddy Colorado River were silenced as the huge dam began impounding what was soon to be the largest man-made reservoir in existence. But, while thousands of visitors gazed in awe at this latest engineering marvel, the wildlife population in the valleys and canyons upstream from the dam were experiencing rapidly changing conditions that bordered on the dramatic. From hundreds of burrows raced scores of small rodents to take refuge upon the nearest high point of land, as the fast rising waters quickly covered what was once their homes. In a very short time, each hilltop—now an island—was literally swarming with animal life. Sheltered rocky nooks were crowded with tiny pocket mice, kangaroo rats or wood rats, while cottontails and jackrabbits wandered about uneasily on the open rocky slopes. Lizards of all sizes and colors cling tenaciously to the rocky outcrops, stolidly awaiting whatever fate had in store for them, and moving only when the waters began to lap around their scaly sides. Hours passed by and the island had become only a small point of rock rising above the dark waters of the reservoir, while tiny struggling objects striving to stay afloat forecast the fate of the remainder of the island's inhabitants.

Such, then, is the visible evidence of the effects upon the wildlife of an area when a huge reservoir suddenly begins to impound.

But more important events took place throughout the Lake Mead region which were not so readily discernible. As the waters rose, thousands of animals, both large and small, were pushed into areas already well populated with others of their kind. This overconcentration immediately

resulted in an influx of other species, most of which were predators of one type or another. One of the finest examples of this process was found as the waters of the reservoir invaded the relatively level Muddy River Valley. Here dense jungles of small shrubs and mesquite covered much of the valley floor, while low-lying sand hills almost hidden by brush and an occasional cultivated meadow formed as perfect a habitat for small mammals as could be found. Being so level, the valley was quickly inundated throughout its lower reaches, the water pushing up the gentle slope at the rate of almost 50 yards per hour. Rodents by the hundreds took refuge in the tops of small bushes and on the low sandy hills. Scores of others fled to the lateral margins of the valley for protection, only to find insufficient shelter available for their great numbers. Almost overnight other species of animals invaded the region. Coyotes could be seen during the daytime leisurely hunting through the few remaining bits of cover around the lake, and obviously experiencing little difficulty in obtaining an abundance of small rodents. Fox tracks showed that this animal was also very active. But by far the greatest menace to the trapped animals were the blue herons. By the dozens they flocked through the valley, pacing back and forth along the shores of the lake as the waters rose, or systematically inspecting the little brush covered islands. Catching sight of a small animal clinging to the top of a low shrub, the heron would slowly approach his prey. After critically looking over his victim, his bill would flash out, tossing the rodent into the air, to be dexterously caught and swallowed as it came down.

But these were not the only rodent hunters that swarmed into the valley. Cooper's and sharp-shinned hawks were commonly observed, even throughout the terrific summer heat of the desert sun, when they normally would have sought much higher and cooler regions. Marsh and red-tailed hawks were abundant, as were horned owls and barn owls. A more perfect example of Nature out of balance could hardly be found. This condition prevailed for several months and does even today to a less degree.

In the meantime some of the larger animals were being directly affected. On two different islands in Lake Mead, bighorn were trapped and unable to reach the mainland. In one instance a coyote was stranded on the same island with a bighorn ram, thus immediately setting in motion one of the most interesting experiments ever recorded in biological studies. For over three years the two animals have lived together on this island, apparently with no friction or ill results to either. An abundance of small rodents and lizards are present, affording the coyote an

adequate food supply for years to come, and there is plenty of vegetation for the bighorn. Thus, this strange relationship may continue for many months to come.

The spread of the lake into numerous valleys and washes also brought about marked change in the fish population of the Colorado and Virgin Rivers. With an abundance of food available as the inundation continued, carp multiplied by the score, and could be seen in great numbers as they foraged in the shallow waters along shore. Other species, such as catfish, squawfish and boney-tail, have greatly increased in abundance.

It was only natural that the creation of a body of water so vast would directly influence the movements and occurrence of numerous bird species in the region. Over 200 different varieties already have been recorded, with others being discovered every few weeks. Migratory waterfowl, shore and ocean birds are those most vitally concerned. Throughout the spring and fall, ducks and geese by the thousands are flocking around the shallower portions of the lake. Pelicans, cormorants, and grebes of various kinds are becoming numerous. Shore birds and waders, from the size of the tiny sandpipers to the stately egret, are commonly encountered. From the ocean have come the gulls and terns, all looking rather out of place at this unique desert lake so far from their normal habitat. It is not possible to predict what eventually will take place among the bird populations around the reservoir because of the rapid changes going on throughout the area. Species that only 3 years ago were infrequent visitants are now permanent residents, and it seems safe to assume that this process will continue with still other species becoming involved.

Vast changes already have taken place among the plants in the region. Drowned out by the rising waters, the desert flora has given way to water-tolerant species which are appearing in ever-increasing numbers. Tamarix, arrowwood, desert willow and cottonwood are already forming what promises to become a veritable jungle on the gentler slopes around the shore. It seems apparent that the continuation of these conditions will bring about great changes in the ecological relationships in the region, but the nature of these changes cannot be determined at this stage of the game.

This, then, is what has happened at Lake Mead during its brief existence, and one can feel reasonably sure that similar conditions will be found at the reservoirs now forming or to be formed at Bonneville, Grand Coulee, Shasta, and other dams.

It is quite evident that the initial steps in the construction on any major reservoir should immediately set in motion a program of wildlife protection and betterment for the region to be affected. In carrying out such a program, several factors are of great importance, but, of these, four seem to be absolutely essential and of equal value. These are:

1. Careful studies of the wildlife conditions throughout

the area to be affected; to be completed prior to the inundation of the reservoir floor.

2. Comprehensive studies on wildlife to be carried on throughout the time the reservoir is forming.

3. The completed reservoir should be developed for wildlife uses wherever feasible.

4. The administration of the reservoir should be under the control of an individual or agency with a thorough understanding of wildlife problems.

Before the flooding of the reservoir floor, surveys should be made throughout the region to determine what wildlife forms are present and to learn their relative abundance. It is not enough simply to know what species of animals and plants are concerned. Instead, the ecological relationships of all wildlife forms should be worked out in sufficient detail to present a reasonably accurate picture of conditions as they exist in their natural state. In the streams which will furnish the water for the new reservoir will be found fairly stable aquatic life, living very much as it has lived for the past few hundred years. These aquatic forms should be well studied, because the sudden inundation of their environment is going to cause radical changes in the abundance and distribution of practically every species. Along the shores of these streams, numerous water-tolerant plant species have adapted themselves to seasons of high and low water, all of which will undergo vastly changed conditions as the reservoir fills. Even the bird, mammal, and reptile life will be greatly altered, because new species will be attracted into the area by this new habitat. Armed with these details, the biologist can aid in stabilizing wildlife conditions after the reservoir is created.

The initial inundation of the reservoir floor furnishes an excellent opportunity to study the effects of a flooding program upon the wildlife population of an area. While little can be done to alleviate the plight of thousands of victims trapped by the rising waters, still invaluable information can be gathered at that time from a scientific point of view. Often it is possible to obtain as much information on the fauna of the region in a single day by a visit to the flood areas, as was heretofore available through weeks of intensive field study.

Developing a wildlife program for the reservoir which will take advantage of all the available resources is a problem calling for careful planning by a competent biologist. With the data obtained in the early stages of the reservoir's development, he is able to visualize what steps can be taken to produce the maximum benefits for all species concerned. The new lake will, in all probability, become an excellent fishing ground if properly managed. Thus, it is essential that studies be made of the waters before any fish planting program is inaugurated. Available food sources for young fish must be assured, the chemical conditions of the water should be recorded and every effort made through selective studies to reduce any future fish problems on the lake to a minimum. Knowing what species of aquatic life were



native in the streams and what conditions existed prior to the formation of the reservoir, the biologist can recommend a fish planting program based on accumulated data and not on wishful thinking—thus taking a long step toward an adequate fishing program on the lake for years to come.

The reservoir will also likely become the focal point for waterfowl of various kinds. Areas can be selected which will provide an abundance of food and cover for these birds, if properly developed and planted. In some cases it is desirable to do this developing during the rise of the water. At Lake Mead such an area was selected along the valley of the Muddy River and will, in months to come, comprise a vast feeding and resting ground for migratory species. By constructing a series of dykes and canals, a group of terraced lakes or ponds were created. These will be planted with food plants suitable for waterfowl, and should develop into one of the finest wildlife areas around the entire reservoir. Work on this project proceeded simultaneously with the rise of the lake and is still in progress.

The creation of waterfowl feeding, resting, and nesting grounds in the reservoir area also carries with it suitable habitats for other forms of animal life. Fish naturally utilize the area extensively, and such mammals as beaver, muskrat, otter, mink, and raccoon can be expected quickly to take advantage of the food and protection now available. Shore birds and waders become familiar sights around the area, while small birds of various kinds are often encountered in astonishing numbers. Over 70 varieties of birds have been recorded in a single afternoon around the waterfowl area on Lake Mead, demonstrating visible proof of the value of the project.

While the creation of a large reservoir will not noticeably affect the larger mammals to any great extent at first, there is a strong likelihood that there will ultimately be far-reaching effects. Especially is this apt to occur among the hoofed animals. In the first stage of the reservoir's development these animals are supplied with an abundance of water, and this is of special importance in a barren desert region such as surrounds Lake Mead. The increase of

available water in such a region is almost certain to be reflected in an upturn in the population curve among the bighorn and deer living in the canyons and on the arid mountain slopes. Even the formation of impassable mud flats, which will finally appear in all of the washes and valleys during the fluctuation of the water level, will not become much of a problem as there are dozens of protected coves where these animals can always reach water without difficulty. However, while this condition prevails at Lake Mead, such is not the case at all reservoirs. In other areas it may be found that the major portion of the reservoir shore line is gently sloping and devoid of protected coves. This ultimately may mean the formation of mud flats during low water which will create an impassable barrier for the large hoofed mammals which normally come down to the shore to drink. Being unable to reach their water supply, these animals will be forced back from the lake into the areas through which streams pass en route to the reservoir. Such concentrations, especially if the number of streams involved are limited in number, may become decidedly detrimental to the vegetational cover in the area, as overbrowsing usually follows. Thus, there may be many far-reaching effects upon the large mammalian population which only the future will disclose, making it imperative that all types of wildlife forms be considered when development projects along the lake shore are proposed.

Finally, the administration of the reservoir is of vital importance to the wildlife of the region. The individual or agency selected to administer the project should not only know the manner in which the reservoir can most advantageously be handled, but he also should have an understanding of wildlife problems. By this is not meant that he should be versed in biological research, but that he should recognize its place in his program and be willing to give it the support it needs. The biologist, through his studies, can do much to insure the future well-being of the animal and plant life of the region by proposing well-planned projects, but the administrator will be the ultimate factor in determining whether these projects are to be successes or dismal failures.



Reservoir shores can be developed as habitats for waterfowl. Above is one of the many ponds constructed along the Muddy River Valley at Lake Mead back of Boulder Dam.

*(National Park Service Photo.)*



Trapped on an island formed by the rising waters of Lake Mead, formed by Boulder Dam, this bighorn {left} has lost much of his fear of man. Below: Waters of Lake Mead have pushed far back into the lower end of Grand Canyon, affording abundant water supply for all wildlife within the canyon.

*(National Park Service Photos.)*







Oregon has preserved much of its ocean-front along highways as roadside parks. (*Photo by Ralph Gifford.*)

Typical Blue Mountain roadside pine forest in Oregon.



Offshore rocks on the Oregon coast.



# PARKS AND WAYSIDES AS FEATURES OF ROADSIDE DEVELOPMENT

by R. H. BALDOCK, *Chief Engineer, Oregon State Highway Commission*, and S. H. BOARDMAN, *Superintendent, Oregon State Parks Department*

GOOD ROADS are often considered to be a distinctive and ultramodern thought and feature of the present day. So far as Oregon is concerned, that is not altogether true.

Quite 50 years ago an Oregon Road Club was in existence in Portland, with a considerable out-of-town membership. Better roads were earnestly advocated and even roadside improvements seriously discussed. Enthusiasts execrated poor roads with the dust evil of summer and the bottomless mud of winter. However, enthusiasm was not accomplishment, and little material benefit resulted. But no effort for good is entirely lost, and the seed of better roads was implanted. That it grew and flourished is evidenced by the splendid highway system of today. The difficulty that always arose was that of finance. No individual or legislature would then have had the temerity to propose a tax on the hay and oats fed to the "hay burners" of that time. A "Boston tea party" would have been the result. It was left to a wise and far-seeing Oregon legislator to propose the gas tax which was first adopted in Oregon as a source of revenue for road building. The logic of this method of metering road use took the Nation by storm and eventually spread over the world as a sound source of funds for road purposes.

The first official recognition given to roadside development in Oregon was an act passed by the legislature of 1893. This authorized abutting property owners to plant hedges, or trees, for use or ornament along the line of any public road and erect fences on the road right-of-way for their protection. The Lombardy poplar and locust rows along old eastern Oregon roads bear mute witness to this early attempt to make the roadsides beautiful.

Successive legislative acts of later years authorized the acquisition of lands for parks, waysides and parking places along and adjacent to the highways and provided for their development, all to be paid out of highway funds. These piecemeal legislative enactments culminated in the preparation, by counsel for the Oregon State Highway Commission, of an up-to-date, streamlined measure that became the Oregon Highway Code during the 1939 legislative session and now governs all State road, park and recreational activities.

These earlier measures, and their terms as incorporated in the Highway Code, very definitely make the conduct of all matters relating to parks, waysides, parking areas and their recreational and esthetic improvements an adjunct of highway administration. The esthetic improvement of highway roadsides in general and Federal-aid highways in

particular is under the direction of a technically trained personnel who care for this phase of the work. The congressional act which requires the expenditure of not less than 1 percent of all Federal-aid funds for roadside beautification has materially strengthened the arm of the beauty lover and provided the landscape architect with funds to accomplish his objectives.

The direct administration of all State park areas and the conduct of their improvement is in the hands of the State Parks Department. The improvements are in part done with State park funds and under park supervision. Work done by the Civilian Conservation Corps is technically supervised by the National Park Service in cooperation with the State Parks Department.

As a unit of the State Highway Commission organization, the Parks Department, with its technical personnel, selects the new park properties which are to be presented to the Commission for approval. No property is approved for purchase that is not contiguous to, or readily accessible from the State highway system, and the standard of selection is rigidly high.

The advantages of the Parks Department being an administrative unit under the Highway Commission are many. There is pooled transportation, and all classes of operating and road equipment are available. Better maintenance, purchasing power, as well as technical facilities of many kinds are available at a minimum of cost, without additional capital investment. A separate parks commission would require new legislation to establish it in office, with the result that political rancor, limited appropriations and endless confusion might impair results without offering gains.

Oregon is fortunate—exceedingly fortunate—that its Parks Department is under the control of a highway commission which, although conservative, at the same time has a broad and sympathetic conception of present park needs and the great future value of Oregon's recreational possibilities.

From the standpoint of parks and recreation, Oregon is physically divided into eastern and western Oregon by a massive cordillera running north and south, the Cascade Range. The greater area is the wide open spaces of the east portion, which is sparsely settled. The number of State parks in this area is limited. Those located near the more populous towns on the main routes of travel are equipped with all park facilities.

The Old Oregon Trail, connecting with the Columbia



River Highway at Umatilla, forms the main east-west route of travel from the Oregon-Idaho line at Nyssa to the shore of the Pacific Ocean at Seaside, a distance of 450 miles, 306 of which parallel the "Great River of the West" on its course to the sea.

Where this pioneer route crosses the Blue Mountains, it reaches an elevation of near 4,000 feet. Here is found the Blue Mountain Timber Reserve, extending in broken continuity for more than 32 miles along both sides of the highway, aggregating a continuous stretch of 18 miles of roadside forest of the typical mountain type of pines and firs. Beautiful and pleasing to the eye, it is unique in being the sole evergreen forest to grace the highway from Salt Lake City, Utah, to The Dalles, Oregon, a distance of 774 miles. In summer, a welcome shade; in winter, a shelter from the driving snows; a heritage without price.

Two other pine timber reserves are in the eastern Oregon region. One is in northeastern Oregon along the Wallowa Lake Highway, en route to the "Switzerland of America." The other is near the Oregon-California border on the Klamath Falls-Lakeview Highway within the Quartz Mountain Mule Deer Game Refuge. All of these will be enduring primeval types of forest for many generations to come.

The historic Emigrant Springs State Park, some 20 miles east of Pendleton, is a part of the Blue Mountain Timber Reserve area, just west of the mountain crest, in a splendid, open setting of large trees, where the desert-worn, mountain-weary migrants and jaded animals were wont to camp and rest beneath the same whispering pines where still flows the copious, crystal spring from which they drank.

A CCC camp was established here and occupied for two periods. In their activities they made a pleasing clean-up of the roadsides the entire length of the timber reserve, installed the usual picnic ground facilities here and in the neighboring Battle Mountain State Park on the Pendleton-John Day Highway. These facilities have been supplemented by State park forces and are now equipped to meet the area demand. Up to this time there has been no other attempt toward extensive park improvements or roadside development in eastern Oregon.

Westward from the Blue Mountains, the open road soon reaches the Columbia River which it follows toward the setting sun. It wavers and undulates around and over the lower shelves of the sombre, towering, basalt palisades, touching an elevation of 700 feet at the wide, parapeted parking space which tops the Rowena Loops in the 260-acre Mayer State Park. This park is rough and undeveloped but famed for its picturesque, winding loops, magnificent views and the rich abundance of its very early spring flowers.

Now beside the quiet waters impounded by Bonneville Dam, the Columbia Gorge proper is soon reached. Here State parks are located at strategic intervals, to and beyond the noted dam all the way to the sea. After all, there is little that man can do to add to or detract from the beauties

of the Columbia River Gorge. It is one of the major phenomena of Nature wherein a great river has cut through a high mountain range at right angles. In the dim past one great river captured the major portion of the drainage, forming the master stream—the Columbia. Gradually the Cascades uplifted—a long-drawn-out period of elevation which arched upward the Columbia River basalts, the Satsop gravels, and the Eagle Creek formation. As the mountain range rose, the river cut through. Landslides slipped from the mountain and temporarily dammed the great stream. The first range that rose was eroded to a chain of low hills. The recent Cascade thrust which created the present volcanic cones reaching skyward—some of which virtually cast their shadows in the Columbia Gorge—is a comparatively young mountain range. Still the Columbia River ceaselessly grinds. Its water-borne sand and gravel are ever eroding its stream bed to the level of the sea.

The amazing luxuriance of the native shrubs and colorful flowers along the famous Columbia River Highway is a delight to our visitors. The towering, rocky palisades, whose crests are often wreathed in trailing clouds, and the lovely, green islands resting on the broad bosom of this mighty river create never-to-be-forgotten scenes of beauty.

The present Columbia River Highway, climbing around the rocky promontories of this great gorge, is too narrow and twisty for modern commerce. The engineers of the State Highway Commission are now building a magnificent highway along the shore of the Columbia River. Hundreds of yards of rock were used to build the toe walls and riprap to protect the highway embankment from the bite of the river. The long, sweeping, graceful curves fit Nature's bold design of this magnificent gorge. From this new vantage point, there are better views of the forest-clad slopes, towering cliffs and leaping waterfalls. In addition there are intimate views of sandy beaches and lovely forest-clad islands along this mighty river. Wide rights-of-way which were acquired will make of this new highway a freeway of limited access, and prevent the growth of noxious artificial roadside culture to mar the beauty of the landscape. The old road, lined with moss-covered stone walls and climbing up to the top of high, rocky promontories, will be retained as a park road and commercial traffic will be barred.

The lesser area of western Oregon contains 80 percent of the people in the State. The nine Willamette Valley counties, including Multnomah County and the city of Portland, aggregating only 13 percent of the State's area, holds 64 percent of its population. The city of Portland alone has 30 percent of the total.

Silver Creek Falls State Park, 60 miles south of Portland and 26 miles east of Salem, is Oregon's premier state park. It is located in the western foothills of the Cascade Mountains at an elevation of approximately 13,000 feet, touched by a hard-surfaced highway which, in part, was especially prepared for the benefit of the park and the adjoining recreational demonstration project.

The principal scenic features of this alluring park are Silver Creek, itself an intriguing name, its attractive wooded canyon setting, and a series of nine beautiful waterfalls with heights varying from 50 to nearly 200 feet.

A CCC camp was established here early in 1935 and has been occupied continuously since. Roads were built, highway roadsides cleaned up, banks sloped, and extensive improvements have been made. Trails lead to every feature of interest, and all modern park facilities have been provided in numbers to accommodate the ever-increasing attendance, which mounted to 176,780 persons in 1939. As an isolated, individual Oregon park, its attendance record was exceeded only by Crater Lake National Park with 225,000 persons. A parking area for 1,500 cars is even now inadequate for the week-end visitors.

While Silver Creek attracts many visitors from the same surroundings, there are a great number of people resident in the above-mentioned concentrations of population who seek their recreation at Oregon's lovely seashore, which is less than 100 miles distant, over straight paved highways.

Oregon Coast Highway No. 101 parallels the Pacific Ocean from the Columbia River to the Oregon-California line, a distance of nearly 400 miles, sometimes so near its verge that the salt spray is in one's nostrils; next the road rounds a bold, rocky promontory several hundred feet above the tide; then it retreats to the shadowed forest lanes of rich, green verdure with only windowed pictures of the tossing sea.

Distributed along this Oregon coast line are 41 Oregon parks, parking areas, waysides and monuments. A central group of these are within 2½ hours' automobile travel for the greater part of the entire population of the State.

This group of State-owned properties has an ocean frontage of 32 miles. Only 1 percent of the entire Atlantic and Pacific shores is under public control, and Oregon's 32 miles is half of the Nation's total. With the exception of a very few miles, which have long been in private ownership, the entire Pacific coast littoral (nearly 400 miles in length) is owned and controlled by the State and, in the language of the legislative enactment of 1913, "is hereby declared a public highway and shall forever remain open as such to the public," a rich heritage for posterity that no other State in the Union can boast, and of enduring memory to its sponsor, former Governor West.

This group of State-owned parks includes some of the most picturesque shore lands to be found anywhere in the United States: Cape Falcon, Neahkahnie Mountain, Cape Meares (a Federal bird refuge), and particularly Cape Lookout, a rugged, narrow peninsula jutting one and a half miles into the western ocean, trailed to its extremity and terminating in a bold headland, with a sheer drop of 400 feet to the sea. Farther south are Humbug Mountain and historic Cape San Sebastian, named by the bold Spanish mariners in 1603. All are outstanding points of interest from which superb views of the miles and miles of shore and forested hills are visible in either direction.

Offshore—some near, some far—are surf-bound rocks, arched and carved by wave and tide to many fantasies of shape. Some are hauling-out berths for seals or sea lions, and their rugged crests team with sea fowl who find sanctuary in their isolation.

This series of coastal parks is very popular with local citizens, as well as out-of-State visitors, and those nearest the centers of population attract almost unbelievable numbers of people. While the parks have a wide variety of attractive scenery that may be viewed from many advantageous park locations and there are numerous other seashore diversions, in the last analysis it is the ocean itself that lures the masses. There is no natural feature of this world that surpasses it in its timeless human appeal, here or elsewhere. Out of an estimated total of 1,715,357 persons visiting Oregon State parks in 1939, the coastal series reported 70 percent of the total attendance. The eight popular, close-in, Lincoln county parks and parking areas alone attracted 57 percent of the total.

From the denser populated areas, the splendid Salmon River Highway is the easy, natural route for this hiegar of recreationists to move to the coast. En route they pass through the Henry B. Van Duzer Forest Corridor, a beautiful lane through wide strips of forest primeval that border the highway for several miles. These strips are State-owned and are to be kept, so far as possible, in their natural state as a living example of a fine, mixed stand of evergreen forest.

Two other highways, Wolf Creek and Wilson River, are new short avenues of travel from the metropolitan area to the northern beaches. If plans for extensive purchases of roadside timber are carried out, these highways will, too, have their prideful miles of corridors of firs and spruces, tall and magnificent in their pristine glory. Fire may destroy, but the hand of man cannot improve these sylvan splendors. They are unto themselves.

Through the coordination of the highway engineering forces and the State Parks Department, with one or two exceptions, every park along the Oregon shore is, or soon will be, touched by the Oregon Coast Highway and each will have a part in the present and prospective expansion of the coastal recreation areas, to the mutual advantage of each.

Much of the highway distance along the coast is near or crowds the shore where the terrain is rough and new construction scars are vivid. Fortunately the scars are readily restored to verdancy by the virile, vegetative forces of this mild, moist region, which soon reclothe the nakedness of all but the steepest, most barren rocks that do not admit of any casual, esthetic betterment. Even these soften with time. Care is used to excavate them to simulate the natural cliffs that tower along the seashore. Beauty often lies in the substantial ruggedness of these. Almost anywhere west of the Cascade Range, where similar conditions pertain, Nature, with some assistance, will rehabilitate any disturbance of the land surface in a reasonable time. Within



and sometimes adjacent to the entrances of the parks where CCC forces have worked, roadside clean-up has been extensively carried on, and landscaping, with a degree of the esthetic, has been widely accomplished, all with pleasing results.

The general aridity of the extensive region east of the Cascades almost precludes roadside beautification, and limits development to localities where water is available in considerable quantity. On the Columbia River Highway in Morrow County, the Highway Commission approved the sinking of three wells, and sufficient water was obtained to develop three experimental oases. The results have been gratifying but the costs would be prohibitive for any extensive development of this kind.

In the forested mountain elevations, reaching up to and over the mile-high highway passes where the precipitation is greater and stream flow is available, the conditions are more adaptable for roadside development, but these areas are almost entirely outside of State jurisdiction.

In 1923, the Highway Commission authorized the first highway tree planting on a large scale. These were set out under the supervision of one of the authors, now State Parks Superintendent. The initial plantings, after years of effort, covered most of the treeless distance along the Columbia River Highway and Old Oregon Trail from The Dalles to Ontario. The seedlings planted were black and honey locust, ailanthus, and Russian olive, the numerical proportions being as the species are listed. They were set 100 feet apart and lined both sides of the highway. The young trees were watered, cultivated, and given every reasonable attention to protect them from railway and highway grass fires in summer, a plague of jack rabbits in winter, and browsing cattle between whiles. There were losses and replantings, while the sceptics ridiculed and criticized, but eventually the great majority of the plantings survived the vicissitudes of their early years and are now

flourishing trees of size and vigor. A record of achievement by a lover of trees who believed and succeeded. Any tree, by the side of any road, is an ornament.

No great objective can be accomplished without the will to do. The close relationship between the State Parks Department and the Oregon State Highway Department has resulted in making the personnel of the State Highway Department "beauty-minded." The mathematical precision of the engineer is blended with the esthetic touch of the landscape architect. The design is such as to take advantage of the natural scenery and at the same time to eliminate unnecessary curvature, distance, and prohibitive grades. Slopes are flattened and rounded, and planted with native material. The use of exotic plants is prohibited. Due care is given to the economics of location in regard to the solvencies and benefits created.

The roadway is streamlined with the landscape, opening up pleasant vistas at every turn. Moreover, the maintenance forces have been trained to preserve the beauty of the roadside, to cut out the noxious growth impairing the beautiful, intelligently to trim the trees and roadside growth, and to provide occasional windows where magnificent views can be glimpsed as the traveler passes over the highways.

It takes an entire organization of "beauty-conscious" people to accomplish these results which emphasize the importance of the close cooperation and coordination of those forces designing, constructing, and operating the State highway system and those who build and operate the State park system. The Oregon State Highway Department and the State Parks Department are interested not only in transportation but in preserving the beauty of the roadside and exploiting the grandeur of a particularly lovely State. The highways of Oregon are the show windows of the State. Oregon is "sold" over and over again to our tourist visitors. It is a profitable business.

## PARKS AND RECREATION IN THE PHILIPPINES

by LOUIS CROFT, *Adviser on National Parks to the President of the Philippines*

EDITOR'S NOTE.—*This is a letter from Mr. Croft to Conrad L. Wirth, Supervisor of Recreation and Land Planning, National Park Service.*

MY ASSIGNMENT is certainly very interesting and challenging. Little attention has been paid to parks and recreation in the islands. Until recently these people have had little share in government. The Spaniard evidently was not concerned with the recreation of the "Indios" and the Americanos has

had other things on his mind. But now with the Filipino taking over it is most opportune to begin a park system. You had a very good hunch that day you opened my eyes to the possibility of this trip.

Having just returned from Mindanao I now have a good picture of the general park and recreational resources of the Philippines. With volcanoes, mountains, small lakes, innumerable waterfalls, caves, rivers and marshes, many

beaches and a rich flora, all set in these tropical seas, the islands certainly may be classified as beautiful. This wide selection of park areas will no doubt be a serious complication in establishing the park system.

The islands abound in bird and fish life. With the exception of small animals such as monkeys and flying squirrels, the wild animal life in the Philippines is not so abundant as I had expected. I may be biased but the python, cobra, and the green tree snakes have not yet won sufficient support to be considered as park wildlife . . . for the enjoyment of the visitors. In Mindanao near Cotabato are hundreds of hectares of Egyptian lotus in the Liguasan marshes. The tall tales of hunters harvesting ducks from this marsh make Paul Bunyan look like a piker. We hope to reserve at least a portion of this large marsh as a wildlife preserve, if not a national park.

You know my mania for seashore parks. It is just as strong as ever. The problem in the islands is further complicated with sharks, stingrays, typhoons, shifting beaches, malaria, a cruel midday sun and the peoples' inherent fear—developed no doubt because of all these hazards. Nevertheless seashore parks are still on the program.

The forests, although endangered, are for the most part luxuriant and fantastic. I have discarded the idea of learning even the principal trees.

Distributed throughout most of the 49 provinces are hot and mineral springs of high recreational and medicinal value.

The Philippines provide an excellent basis for national historical parks. While the story of the pre-Spanish days is rather hazy, the activities from Magellan on, including the life of the national hero, Rizal; the revolution against Spain and the Philippine-American war, provide many sites of parklike character. Magellan was killed by the native Chief Lapulapu in Mactan Island just east of the city of Cebu. A monument to Magellan now stands at one end of the island and one to Lapulapu is located on the opposite side. The possibilities of connecting these two with a parkway immediately presents itself.

Parkways in the Philippines are an innovation and perhaps this one will develop prematurely. There will have to be considerable improvement in highways before parkways make much progress. The principles of planning such as location, alignment and esthetic treatment, have yet to make their appearance on the highway horizon. I am exerting all possible influence on the Bureau of Public Works to improve highway planning with the hope that soon such things as parkways can be mentioned.

A new highway has just been opened between Davao and Bukidnon in Mindanao. It was dedicated as "Sayre Highway" after the High Commissioner. (The Division of Geographic Names would tear its hair at the place-names here after living individuals.) There are several ideal locations for waysides along this highway and now is the opportune time to reserve them in this new country which is just being colonized. The year-round climate in Bukidnon

rivals that of upper New York in summer. The large plateau averages about 600 meters elevation and has an evenly distributed rainfall. The excessive rainy and dry seasons of Manila are unheard of and typhoons seldom visit this southern island. Malaybalay (which means there are houses; superseding Wabaybalay, meaning there are no houses) should become one of the most important cities in the Philippines, especially from an agricultural standpoint. Why Manila was not located in such an ideal place reminds me of a similar question regarding the location of Washington, D. C.

Lake Lanao and the new city of Dansalan is a very picturesque region. Lake Lanao (which is another way of saying Lake Lake) is 30 kilometers long and 15 kilometers wide, the largest of the mountain lakes. Its elevation is approximately 800 meters and the surrounding mountains are 2,500 meters. Adding to the attraction of Lanao is its location in a rich agricultural section, together with the possibilities of developing a scenic approach from the port of Iligan, some 30 kilometers away. Included in the road from Iligan to Dansalan is a beach and waterfall near Iligan and the beautiful Maria Cristina Falls, over 100 meters high. Continuous rainfall assures Cristina a year-round flow . . . in fact a little could be spared for Fall Creek Falls. The present difficulty with Lake Lanao is that its shores are entirely occupied by the Moros, whose sanitary habits prohibit full recreational use of the water. Lanao is the last stronghold of the Moros in Mindanao and Christian life is still a little risky. Until a more peaceful condition exists between the two people, particularly the Constabulary and the Moros, the recreational development of Lanao will be retarded.

Mount Apo, the highest mountain in the Philippines, is definitely of national park calibre. The Japanese have been very shrewd in colonizing this section of Mindanao and their modern city of Davao with its 100,000 inhabitants, 15,000 of which are Japanese, is in the shadow of Apo. This must remind the Nippon of his sacred mountain at home except that Apo is not the isolated, beautiful snow-capped Fuji. Mayon is the only mountain which approaches Fuji. The lake, hot springs and waterfall of Mount Apo add much to its park possibilities.

A skeleton park office is now being organized. With limited funds an engineer and an architect, with clerical and drafting assistance, have been secured. Pending the appointment of a park historian, the architect will handle the historical problems, including that of making an inventory of historic sites. The engineer will temporarily handle the geologic problem and will collect information for the study regarding beaches, rivers, climate and weather. A forester is being assigned from the Bureau of Forestry. His knowledge of the fauna and flora will make a valuable contribution to the recreational study. I hope to secure the cooperation of the Bureaus of Science, Lands, Education, Health, and Welfare, together with that of the universities, historical societies, and the church (more than 90 percent



of the Filipinos are Catholic). A more complete organization modeled largely upon the National Park Service has been submitted. In addition to the branches (on a smaller scale of course) it includes a section of provincial and municipal park planning cooperation.

Two pensionados have just left for the States to study landscape architecture and town planning. These are the first men in the Philippines to concentrate their efforts in these planning professions. I have asked them to pay all possible attention to parks and general conservation problems. Excluding the small town plazas, the problems of municipal and provincial park systems have received no attention. With the low wage scale, lack of roads and transportation facilities, local parks are very much needed and I have been encouraging their establishment. Except in a half-dozen instances near the larger cities, national parks are more of a problem of reserving and preserving and not one of immediate development.

Information for the recreational report is being collected. With the major part of my traveling over and master planning started on the areas most urgently requiring facilities, considerable more attention can be devoted to the report. Government red tape is as much if not more of a problem here than it is elsewhere. Public education may be a problem in the States, but imagine what it is here where there is not even a Central Park at which to point a hopeful finger. The mention of park planner or landscape architect excites plenty of interest, but it is of the Buck Rogers variety. It may appear that I feel the training of personnel to handle the park work is a hopeless task. On the contrary it will be most interesting, and by no means unsurmountable.

Many Government officials have shown considerable interest in getting some parks established. I am told that

this is a passing fancy and as soon as I leave the parks will go into oblivion. An answer to these pessimists runs like this: "It is not a question of whether this or that individual believes in parks; parks and recreation are inevitable in any modern life. The problem becomes one of properly planning for them."

Considerable support is being given to social security in the Philippines and I have concurred in the recommendation to establish a CCC. Of course, where we think in terms of millions of dollars the Filipino has to think in thousands of pesos. However, if only a few camps were established, the parks and forests would receive needed assistance. Kaingin (the burning of forests by mountain people for temporary corn and upland rice crops) offers a serious menace to forests and facilitates the forces of erosion. The problem of squatters and private destruction of the scenic and natural resources in the Philippines is a social problem which has defied solution and, until a remedy has been successful, the existence of parks and forests is greatly endangered. My theme song now is preservation first.

Everywhere problems of city, regional, and highway planning are presented for review. It is often difficult to confine attention strictly to park and recreational problems. I have recommended that a Land Planning Division be established in the Commonwealth Government to direct these matters, together with those of land classification, homesteading, and resettlement. It is tempting to delve into these interesting planning fields but I feel that 2 years is none too long to devote to the study and get a national park system on its way. This country needs to develop its own land planners. With pensionados and the addition of this type of planning to the curricula of the universities, I hope a start in the right direction may be made.

## REHABILITATION OF CITY BOYS THROUGH CAMPING EXPERIENCES

by ALFRED H. WYMAN, *Executive Director, Park and Playground Association, St. Louis*

UNLESS MR. WEBSTER has completely revised his dictionary, we can still find the definition of "rehabilitation" listed as "restoration to former rights." If we consider the rights of a city boy in terms of rightful heritage, it might make it easier for those of us interested professionally in recreation to better understand the process of restoration through

camping experiences. Bricks, mortar, cement, asphalt, and smoke have been substituted for invigorating air, healing sunlight, intriguing vegetation, and space for inquisitive creative play out of doors. Certainly every child has the right to expect some of the benefits of living out of doors.

The following thoughts are constantly being brought to

our attention concerning the rightful heritage of every child:

Every child has a right to experience the thrills of exploring the woods, valleys, streams, and open fields in quest of Nature's wonders. Being able to do these things is only part of the process of growing up so the child can live to enjoy adulthood with his family and others. Usually children like to share their experiences with their associates. They are social beings and learn how to adjust to the demands of the group. They want recognition, satisfying activities, status, and a feeling of belonging. Such opportunities for growth where a free choice of activities can be had are not any too plentiful in our congested cities. Usually the reverse is true when counseling is poor or leadership not available. Too many of our city children are faced with frustrations, ridicule, scorn, and disapproval from playmates with advanced skills and from unsympathetic play leaders and other adults.

These problems can be coped with by recreational group work agencies if some renovation can take place in the planning of their programs. City playgrounds are failing to meet the individual needs of children; community centers are too institutionalized; park departments do not show enough imagination in the use of their facilities, while many other organizations or recreational movements are artificially motivated by awards and program devices. Camping can develop a philosophy of learning that deals with the unfolding of personality. Modern camping has also developed other complementary educational objectives for revealing latent skills and awakening child enthusiasm for wise uses of leisure time.

If recreational organizations and leisure-time movements would realize that activities are never an end in themselves, and that traditional objectives of keeping children off the streets are only implications of propaganda, we would develop in children better habits of thinking, working, playing and successfully living together.

One of the best, most progressive and understanding leisure-time programs is that being carried on in the camping world. In modern camping there is a closer relationship between camper, staff, counselors, parents, teachers and community forces than in most recreation fields. The interchange of case records between camp and referral agency has brought profitable results in understanding behavior problems, undeveloped skills, latent interests and social adjustment. Such procedures have added a new and richer meaning to the recreational life of the camper.

We often ask the question, Why is it that camping is able to contribute so much more to the individual's growth and social adjustment than other recreational agencies? Part of the answer can be found in a comparative statement between the procedures of the past (traditional) and the new progressive recreational programs such as we now find in the camping field.

The following outline is a comparison of the old and new methods:

<i>Old (Traditional)</i>	<i>New (Progressive)</i>
1. Programs were static.	1. Now flexible — changing — growing.
2. Mass organization—departmentalized.	2. Individualized program (small group).
3. Child adjusted to program.	3. Program adjusted to child.
4. Motivation through awards and devices.	4. Fewer gadgets—for fun of playing.
5. Strict discipline.	5. Interest in treatment—group thinking.
6. Program planned by adults.	6. Cooperative planning.
7. Prizes to selected few.	7. Everybody recognized for achievements.
8. Development of cliques.	8. Group consciousness.
9. Centers of control in individuals.	9. Group initiated.
10. Perfection of performance.	10. Creative—imagination and satisfying activities.
11. Director dominated staff.	11. Democratic discussion groups.
12. Play against others.	12. Play with others.
13. Based on assumed interests and needs.	13. Based on real interests and needs.

If camps are to reveal talents, awaken enthusiasms, develop lasting skills, stimulate right living relationships, develop good citizenship, and re-create and develop the child according to his ability, then consideration should be given to the camp organization, administration, and group work processes.

The following is not supposed to be a shining example but an honest attempt on the part of the management of Sherwood Forest Camp to put into practice the above-mentioned provisions that have had therapeutic values.

### *Objectives and Aims*

Sherwood Forest Camp was organized in 1937 by the Park and Playground Association of St. Louis, a member agency of the United Charities, Inc., for less privileged boys and girls between the ages of 12 and 16 years. A deliberate effort was made to avoid organizing a camp program on traditional recreation, athletic, or playground lines. Sherwood Forest Camp can be characterized as a "Democratic-Cooperative Camp." Special emphasis is placed upon: (1) Health and safety. (2) Play skills having permanency. (3) Appreciation of the out-of-doors. (4) Developing wholesome habits. (5) Tolerance (understanding). (6) Participation. (7) Social adjustments. (8) Cooperative living. (9) Leadership training.

Both camper and counselor alike share in the formation of the daily program. The staff anticipates program needs, provides ample resources, and makes available trained leadership in helping to uncover camper needs and interests.

### *Camper Organization*

The physical equipment at Sherwood Forest Camp lends itself admirably in following through the camp objectives, especially the grouping of campers into small units or clubs and the cooperative program planning.

Each of the 4 villages, or housing units, accommodates 30 campers who are divided into 3 clubs, 3 group coun-



sors, 1 village director, and 1 relief counselor. Each village elects its own mayor, who serves as chairman of his village council and is a representative at the camp senate. Each club elects its own president, vice president, secretary, and program chairman. Clubs meet daily to decide on activities, plan programs, and work schedules and keep minutes of their meetings.

### *Program*

Program emphasizes fun and comradeship with a minimum emphasis on competition, developing leadership through holding chairmanships in clubs and taking part in committee activities.

The program is built around physical and social games, arts and crafts, nature study, music, dramatics, pioneering, and guidance in the use of leisure-time activities.

The Robin Hood theme is woven into the council fire ceremony, the arts and crafts, music, and dramatic activities.

Nature trails have been established and trailside exhibits arranged for the display of insects, animals, flowers, and fauna. Trails are arranged on the basis of training and testing.

A pioneer village is being constructed by both boy and girl campers. Three log cabins and a bridge have been completed. A trading post and outdoor kitchen are to be constructed.

### *Creative Experiences*

In almost all activities opportunities are made possible for creative experiences. Each camper has the privilege of self-expression in an environment and atmosphere where he can express his own opinions and desires. In small groups and with sufficient free time, each camper enters into cooperative planning with his friends and counselor. The activities for the craft shop and museum are interrelated with the pioneer village, council fire ceremonies, dramatics, and nature trailside exhibits.

Campers are encouraged to design, build, and make camping equipment such as cabins, furniture, bridges, tapestries, cages, bulletin boards, boxes, shelving, bows and arrows, etc., which remain in camp as their contribution for others to enjoy.

### *Democratic Process*

The camp plan of administration and physical equipment is organized to allow individual and group planning of activities. Campers and counselors have ample opportunities to offer suggestions for corrections in time off, trips, cook-outs, banquets, and other program adjustments.

### *Pre-Camp Counselor Training*

Counselors' contracts call for a 5-day pre-in-camp orientation course. This training calls for an understanding of the camp's philosophy, objectives, and purposes. Methods of coping with behavior, health, and personality prob-

lems are discussed. Case records and referral agencies' policies are carefully considered. Methods of keeping records, noting behavior traits and drafting final narrative reports are demonstrated. Counselors become acquainted with the camp site, trails, tools, fire, safety, sanitation and health equipment, housekeeping arrangements, library, reference books, literature, charts and other resources for program building. Physical game skills are not taught other than the handling and care of archery and water-safety equipment. The personal health of counselors and campers is discussed by the camp physician, nurse and director. Visiting hours and courteous attention to guests, chance visitors, and agency representatives are emphasized. Suggested innovations in programming are tabulated and outlined and skills of procedure taught, i. e., collecting, preservation, mounting and exhibiting of geological and nature specimens.

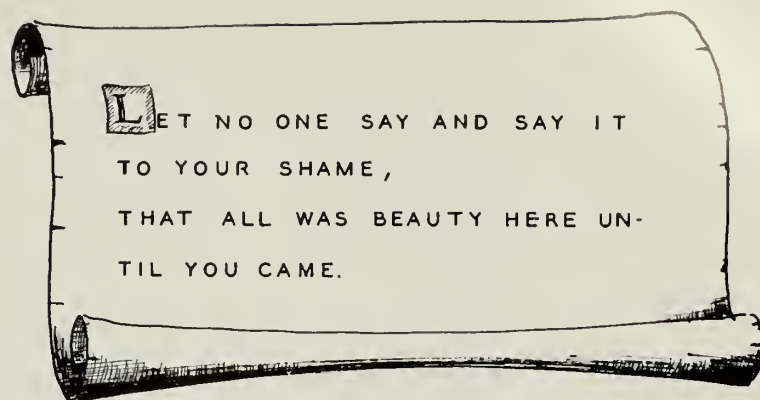
### *Post-Camp Follow-Up*

Complete records in narrative form are prepared from village director's, counselors' and program director's daily observations and reports on each camper. These reports are forwarded to each referral agency upon written request. Referral agencies may also request a hearing with camp program and personnel director and executive director concerning their clients.

### *Conclusions*

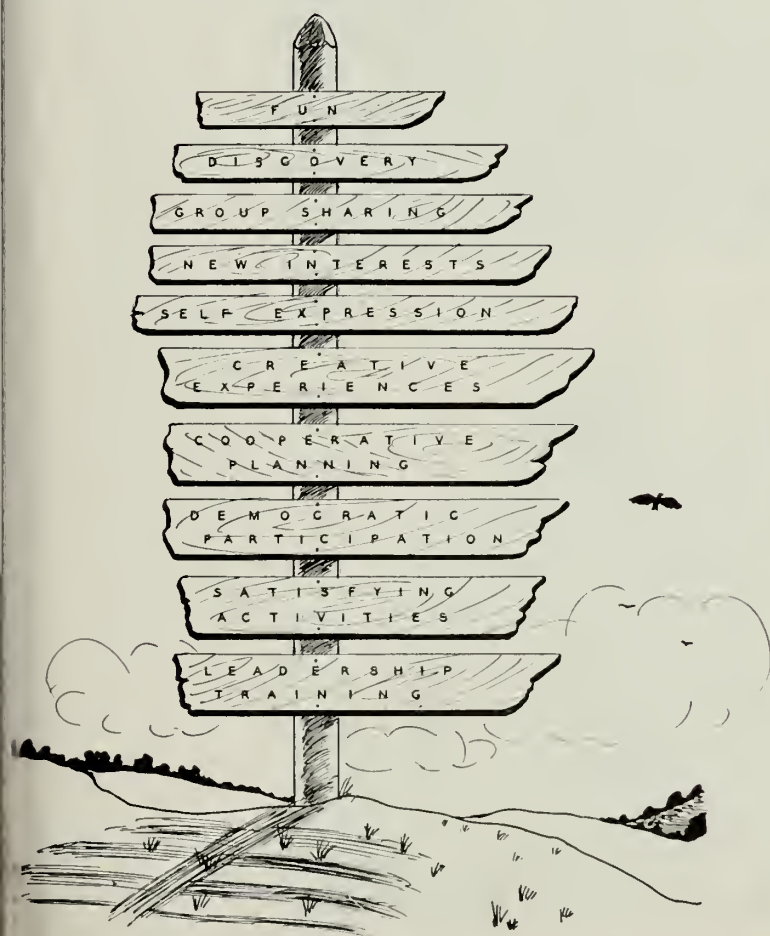
It is our belief that city children can be benefited by a camping experience if the camping agency will work from a check list that:

1. Records a philosophy, aims and purposes in accord with modern educational practices.
2. Recruits staff and counselors in sympathy with outdoor living, who have imagination, enthusiasm and a spirit of cooperation. Counselors must have at least 1 year's college work, be 19 years of age; but it is preferable that they be juniors or seniors with a background of sociology, physical education, psychology and be 22 years of age with emotional stability.
3. Requires pre-camp counselor training in camp (where learning to live and work together is the first step in rating a counselor's efficiency).
4. Requires adequate case and historical information be secured at least 3 weeks in advance of each camper's entry into camp.
5. Makes decisions on common problems and programs a democratic process.
6. Requires physical equipment and camp administration to lend itself to cooperative planning.
7. Insists camp living, equipment and program must facilitate the creative experiences.
8. Makes necessary ample resources in books, literature, tools, etc., to be accessible to counselors and campers at all times.
9. Requires that records on health, accomplishments,



This admonition, "more truth than poetry," speaks for itself.

Learning to work with the hands is one of the most valuable camping experiences for a boy.



*Left:* A few camping objectives. *Below:* Tillering a bow as to weight pull.







Protection of public health is an all important aspect of park planning. At top is a latrine in Backbone State Park, Iowa. Above: A garbage pit marked by an attractive sign in Mount Nebo State Park, Arkansas.

*(National Park Service Photos.)*



A water tower in Mount Nebo State Park, Arkansas, designed to fit the park landscape.

*(National Park Service Photo.)*

behavior and social adjustments be kept daily and forwarded to parents or referral agencies upon request.

10. Requires that listings of minimum camp standards be procured and lived up to. All counselors and staff members should be acquainted with the most modern camp standards and procedures.

The question has often been asked of the Sherwood Forest Camp management, "Is it possible for campers to make satisfactory social adjustments in a 2-week encampment?" The answer is that it is possible when the leadership understands and is willing to stand by the camp's objectives, aims, purposes and procedures. Perhaps the statement, "Mean

camps make mean people" is often true when camp managements are not willing to profit by new procedures and adjust to modern standards.

Sherwood Forest Camp was fortunate in obtaining one of the first camps developed by the National Park Service in the Cuivre River Recreational Demonstration Area in Lincoln County, Missouri, and in having the benefit of the National Park Service's advice and counsel. Such service has been an inspiration and guide for established camps to follow. Many instances of revised camp objectives, sanitation, physical equipment and program are attributable to the work of the National Park Service.

## PUBLIC HEALTH ENGINEERING IN STATE PARKS

by U. W. HELLA, *Engineer and District Supervisor, Minnesota Department of Conservation, Division of State Parks*

### *What is Public Health Engineering?*

IT CALLS for a general knowledge of engineering principles but is primarily concerned with those phases of design, construction, and operation of facilities essential to life and comfort of organized society that are potential sources of infection and dissemination of environmental diseases.

What are the specific services that a public health engineer can provide to a State park department?

His basic knowledge should cover the manifestations of the most common diseases of water, sewage, milk, other foods, food poisoning, and rodent- and insect-borne diseases as to their causative agent, reservoir of agent, escape, mode of spread, mode of entry into the human body and susceptibility of man. He should have an understanding of how control might be affected through these factors.

A potable water supply is the first problem in any State park development. A public health engineer is trained to have an appreciation of the pollution possibilities and to determine the chemical, physical, and biological characteristics of rain water, ground water, and surface water. He is trained to take into consideration in the design, construction, and operation of water purification, pumping, and distribution systems—those factors which are the potential hazards to public health. The same is true of waters suitable for bathing; but he must, in addition, be cognizant here of those facilities which are to a varying degree potential bodily injury hazards.

The sewage and waste disposal problem is practically on a par with the drinking water problem. He must have an appreciation of the degree of sewage treatment necessary

to render sewage innocuous to human, plant, or animal life. To do this he must be acquainted with the methods of sewage and waste disposal and those physical factors in this disposal which might be a source of contamination or infection.

Food dispensing, either on a large or limited scale, has become a service to the park user which is provided in practically every State park. He is trained to be aware of the dangers connected with food handling and cooking with particular stress on the preservation of foods to keep them innocuous. He is trained to plan physical facilities essential to food handling and preparation and thereby minimize the danger of infection.

His training covers other phases of public health protection or nuisance alleviation, some of which relate to a greater or less degree to the service already discussed. These are rodent control, mosquito control, and the effect of control methods on other wildlife; healthful housing, effects of pollution on fish life, and many other items less closely related.

Environmental diseases have played an important part in the course of history. The building of the Panama Canal was delayed a quarter of a century largely because of malaria; one-fourth to one-half of the population of Europe died in an epidemic of bubonic plague in 1348; armies have succumbed to disease rather than the overwhelming force of the enemy. It is now an avoidable loss of life, disability, or loss of productive time, but it still continues to exact a heavy toll.

Each year, all over this country, outbreaks of typhoid



fever, gastroenteritis, amoebic dysentery, and other water-borne diseases occur because of cross-connected water supplies, faulty well construction, inadequate water purification, improper waste disposal, etc. Other environmental disease outbreaks occur because of a lack of understanding and appreciation of basic principles of public health engineering by a public agency charged with providing those services.

The recent intensive development of State parks, coupled with the increase in leisure time, have brought millions of people to these areas. In some areas a single well serves up to 200,000 people per season. It seems, therefore, that public health should be a special concern of park administrators and yet it can be said in many cases that there has been only tolerance toward the public health engineer's services, which, in most cases, were furnished through the State boards of health by compulsion. These services in many instances are limited to plan inspection. Unless plans are followed in every detail in actual construction the value of this plan inspection by the board of health can amount to nothing. There is the problem, too, in some States, of facilities provided before these plan inspections were required. Frequently these facilities are potential haz-

ards which will not be discovered until there are disastrous consequences.

Too often the services of a public health engineer are shrugged off with the statement that, though his theories deal with possibilities, the probabilities are small. The rise of this profession to the point where it is now recognized by graduate degrees in many of the major universities can be measured by disastrous outbreaks of environmental diseases. These may have occurred because of administrative ignorance or uncontrollable circumstance, and, yet, certainly, at times, because of smugness of attitude.

In 1939 a typhoid epidemic broke out in a State-operated asylum in the Midwest as result of faulty sewage disposal. Several persons died. A few years ago a similar epidemic broke out in a large midwestern city because of a contaminated municipally operated water system. In both of these instances the outbreaks might not have occurred had the services of a public health engineer been employed in the design of these facilities, with at least occasional inspection of their operation. There are numerous similar cases on file. Let us not permit our State parks to be pointed out as examples of this sort of bad health management.

## CONFIDENCE IN THE AMERICAN WAY

by CARL P. RUSSELL, *Supervisor of Research and Interpretation, National Park Service*

IN 1940 more than in any year since the National Park Service was established field officers and key men in the Washington office have turned introspective. In collaboration with budget officials and congressional committees they have surveyed the varied programs of the Service and analyzed the effect of National Park Service activities in the America preparing its defenses.

In 1940 conservationists and educators generally throughout the United States have, as never before, engaged in a searching examination of existing methods of providing citizens with a basis of knowledge of things American. They have done this because they believe that Democracy depends upon the wisdom of the people; because they believe that the people of the United States should be self-reliant in answering weighty questions. Reports and publications prepared in connection with these studies reflect the determination of the investigators to defend their institutions and their ideals against the antisocial forces now sweeping the world; usually they draw the conclusion that preservation of American traditions, the teaching of history and the popular interpretation of natural history can make important

contribution to the preparedness program of the United States.

One of the discerning observations made in these studies of social needs comes from the pen of Archibald MacLeish of the Library of Congress:

"If the young generation in America is distrustful of all moral judgment then it is incapable of using the only weapon with which fascism can be fought—the moral conviction that fascism is evil and that a free society of men is worth fighting for. If all convictions of 'better' or 'worse' are fake, then there is nothing real and permanent for which men are willing to fight; the moral and mental unpreparedness of the country is worse than its unpreparedness in arms."

In this circumstance of mental unpreparedness is a formidable threat—a threat that involves all that we are, and all that we have in the way of spiritual, political and material possessions. If ever there was a challenge thrown before the men and women, and especially the youth of America, it is the problem posed by the circumstance of unpreparedness of the national mind. It is a challenge

that calls for a great deal of practical thinking. Fear of actual attack by the war machine has focused our attention upon defense in terms of soldiers, supplies, guns, and projectiles. Every effort is being made to provide defense against physical attack from without and sedition from within. The same effort must be directed toward preparedness of the mind. Our true preparedness must be based upon unshakable faith; armament must be backed by the deep-rooted conviction of the tenets of the freedom that is ours.

The United States of America will persist as long as we who have inherited it believe that it is enormously worth preserving. We have taken it for granted that we may keep on forever celebrating the Fourth of July, but now it begins to dawn upon us that great nations do die. If ours is not to perish each citizen must discern what the United States is, really, and what it means.

In the historical shrines and the beauty spots of the National Park Service is a most precious part of our national heritage and ideal physical units perfectly prepared to assist the citizen in discerning what the United States really is. Gradually it has become apparent to a multitude of Americans that an important educational aspect is to be found in the public enjoyment of the national parks; that scenic and scientific appreciation, historical mindedness and national patriotism are intensified through their use. The Service has committed itself to a policy of preserving, and presenting by striking examples, the comprehensive and varied story of earth forces and the progress of civilization in this country. From the standpoint of scope, the national park stories now connect and constitute expression of much that is essentially American. In short, the National Park Service is most advantageously situated to develop a national perspective in social traditions and aesthetic appreciation of all that America has and stands for. It is an agency ready-made and prepared to contribute to the maintenance of confidence in the American way.

Making this wealth of national expression accessible and understood to millions of citizens is a great responsibility. It is, also, a great opportunity—an opportunity that may well be seized just now and utilized fully, for it has a bearing upon national morale. In 1939, sixteen and a half million people enjoyed the areas under the administration of the National Park Service. Six and a half million visitors used the services of the park naturalists and their assistants. More millions enjoyed the programs offered by historians and their aides. In this large-scale program of teaching there is little that smacks of the academic; it is a part of the park visitors vacation and quite in tune with his play-time attitude. It is recreation, I should say, in the best sense of the word.

To determine the effectiveness of the naturalist program and to obtain the frank appraisal of park visitors many of the park naturalists in 1940 suggested to participants in their guided trips and lectures that written comment be made on their personal reaction to the work. Thousands

of letters were received and they continue to come. A few sample expressions will yield the gist of the response.

#### *Instills Love of Country*

Thoughtful persons deplore the widespread sardonic spirit of doubt in America as to whether anything is worth fighting to maintain. Nothing could be a more effective antidote to this spirit than the work of the ranger-naturalists in telling so many thousands of their countrymen vivid chapters from the story of the good land which has become our heritage.—*John M. Maguire, Harvard University.*

Here is an informal, functional type of learning for both grown-up and child. It is part of the American outdoor heritage that city children especially need to round out their growing up.—*Elizabeth Simpson, Berkeley, Calif.*

I have been impressed by the great educational value of the naturalist service from a national standpoint. Citizens get a far wider and deeper grasp of the great and varied resources of our country through these national park experiences than the majority could get in any other way. These services are a permanent contribution to national defense, which, after all, is primarily a psychological and moral attitude.—*J. A. Leighton, Ohio State University.*

Carl Sharsmith, the ranger-naturalist, leading the folks in songs and talking to them about their mountains seemed to be the spirit of democratic America at its best. Real patriotism does not have its deepest roots in a man-made flag, or institution, but in the very earth on which we live and for which the forefathers fought and out of which still comes most of our living. Respect and love for this country is what the ranger-naturalist teaches, and there can never be enough of that.—*Franz Gerstaecker, San Francisco.*

The greatness of the United States is largely invested in her marvelous natural treasures. The ranger-naturalist, the link between the public and the deeper values of the national parks, has a most important function in fostering the educational and even sentimental value of the greatest of all American institutions.—*Erik von Kuehnelt-Leddihn, St. Peters College, Jersey City, N. J.*

The National Park Service interpretive organization is doing a monumental work. Its activities are of the finest type for enlarging American life. The National Parks are, in my opinion, our Nation's expression of its better self.—*Douglas S. Ward, Greeley, Colo.*

It is highly important these troubled days that Americans learn of America in a way that endears it to their hearts. The national parks are a chain of natural jewels which, when understood in their full significance, swell this natural love of our country. Ranger-naturalist activity is doing more than any other one move to acquaint Americans



with the true value of these surroundings. . . . Preparedness is the keynote of all decisions now, but it is preparedness in character that is needed as much or more than in arms.—*Sam Campbell, Three Lakes, Wisc.*

#### *An Antidote to War Hysteria*

The strength of our people came originally from the hills, from the primitive and the natural. We can use more of that strength now. If there ever was a time when the natural features of our world need interpretation it is the time when the public seeks escape from the puzzling distractions of today's conditions. The ranger-naturalist provides the needed interpretation.—*Stanley A. Cain.*

In this world filled with turmoil it is a godsend to not only those who make the hikes, but thousands of others who visit the national parks, to have opportunity of thinking about something else other than the strife in the world.—*Albert E. Sigal, Oakland, Calif.*

National defense includes maintaining the morale of the Nation—fostering religious, educational, and recreational aspects of our national life. Without good morale "the people perish." In my opinion, as the shadow of war deepens over this country our people must be given increased opportunity of developing those mental and moral qualities that will keep us from national hysteria. National park activities help to give us a mental balance that will enable us to carry on.—*W. A. R. Bruchl, Jr., Cincinnati, Ohio.*

In addition to the obvious benefits of the national parks educational work I should like to mention two aspects which I think are especially important. It makes for clear, calm, common-sense reasoning in these days of crisis. It gives stimulation to new and progressive ideas. Yosemite has helped me to get my feet more squarely on the ground in this respect.—*Walter M. Miller.*

#### *Teaches Conservation Needs*

Through two summers of residence at Mount Rainier and through travels which have taken me to many other of our national parks I have come to know the worth of the naturalist service and to feel that without it our parks can be little more than well policed recreational areas. . . . I doubt if there is any other educational service which reaches and impresses so large a section of the public with direct teaching in the out-of-doors. And I doubt also if there is any educational agency that does so much good with each dollar spent. The thousands of people who attend the campfire talks and nature hikes cannot help but find some lasting satisfaction good for them and good for the country. Each one is certainly more appreciative of the meaning and need for conservation of our natural resources and a little more proud of the country in which he lives.—*Max Demorest, Yale University.*

As park visitors understand the national park idea and management practices less money need be spent in protection. Many of our national mistakes of the past were due to a lack of public understanding of nature and her fine balances. The problems of soil saving, hawk and owl values, need for some predator population, recreational values of natural beauties, etc., should be understood by the citizen. The park naturalist staff can help to impart that understanding.—*Mae E. Dennis, Spokane, Wash.*

#### *Fosters Appreciation of Natural Values*

The work done by naturalists to present to the visiting public the features of the national parks so that they may be understood and enjoyed is, to my mind, indispensable. Without it the parks would become only picnic grounds, to be looked at of course, but not to be understood and thoroughly enjoyed. The educational service afforded by the naturalist organization is a most important and valuable part of our system of American education.—*Leland C. Wyman, Boston University.*

The guided nature walks, the Junior Nature School and the museum lectures make Yosemite my ideal vacation spot. My son looks forward all year to the time when he can return to Nature School and the able guidance of Mr. Heile. He has learned such a number of valuable things, including the way to enjoy all of the great outdoors.—*Frances Walters, San Leandro, Calif.*

In my opinion the ranger-naturalist service is the primary reason why many people return to the national parks. It is the service that individualizes these areas and sets them apart. I believe this service constitutes the largest field class today. It is in reality a great school of the outdoors.—*W. Helms, Lomita Park, Calif.*

I appreciate the fact that there is a tremendous amount of work in the supervision of a national park. It occurs to me, too, that all of this work finds its expression in the public contacts made by the ranger naturalist. Without this naturalist service little of the other work would be known or appreciated by the public.—*H. Sterling Taylor, Berkeley, Calif.*

Most of us have little time in a busy work-a-day world to pick up the knowledge so necessary to one's understanding and appreciation of the beauties of nature. When one gets this knowledge in such a pleasant way as is possible in the parks, it is to be recognized as a special benefit.—*Olga M. Staatz, Milwaukee, Wisc.*

I think that it is the service of the ranger-naturalists which makes people want to go back to the national parks after their first visits. It makes for a realization of the splendid thing the Government is doing in setting these areas aside for public enjoyment and popular education.—*Mrs. Robert R. Butturff, The White House, Washington.*

The National Park Service has been reaching the public with the organized story of America for 20 years. Millions of citizens have enjoyed this offering and now a notable body of park users are prepared to argue for the continued presentation of the story; a presentation that is effective now in time of international turmoil and will always be effective in time of world peace. A significant outgrowth of the naturalist service developed in the national parks is the Nation-wide activity in teaching the values of natural resources in State, county and municipal parks. Not until this year was it known how extensive is the park naturalist work throughout the country. A survey has been completed within the last few months which reveals that 77 programs employing more than 500 naturalists in 289 areas are being conducted along the same lines as are the naturalist programs in national parks. The 77 programs studied in connection with the survey are public programs. If field programs conducted by universities, schools, and clubs for the benefit of students and club members are counted the total number becomes 145.

These programs feature lectures—given outdoors before a campfire, or in an appropriate museum or historic setting; museum exhibits; and guided field trips. Subjects covered include plants, animals, geology, archeology, ethnology and history. The methods and objectives are the same as those defined for the naturalist programs of the National Park Service and it is obvious that the work in State parks is quite as effective as is the accomplishment of the national park naturalists. The fundamentals of nature appreciation can be taught at Bear Mountain, New York, quite as satisfactorily as is possible in Yosemite National Park. Wherever in natural beauty spots crowds of people gather on recreation bent there can the naturalist accomplish his interpretive objectives.

From the beginnings made more than 20 years ago in Yosemite National Park the field method of studying nature in the open rather than from textbooks and in laboratories has spread throughout the Nation. The survey referred to previously reveals the following classification of the naturalists programs offered to the public:

Hotel . . . . .	1	State departments . . . . .	12
Hospital . . . . .	1	Metropolitan districts . . . . .	3
Societies, institutes, etc. . . . .	13	County commissions . . . . .	2
Museums . . . . .	4	City park and recreation	
Sanctuaries . . . . .	2	departments . . . . .	15
Botanical Gardens . . . . .	1	National Park Service units . . . . .	23

Thirty-three States and Hawaii are represented in the recapitulation. Fifty-two of the programs are offered throughout the year and the other 25 are limited to the summer season. Thirty-nine State parks, 37 city, metropolitan or county parks and 22 national parks provide naturalist services. The remaining 199 areas in which the work is done include recreational areas, playgrounds, botanical gardens, game sanetuaries and the countryside, generally.

Prior to 1920 there were but 3 naturalist programs in the

entire country. From 1920 through 1929 the number increased to 18, most of them in national parks. The remarkable growth (69 programs) during the decade just ended is indicative of the expansion that may be expected in the immediate future, for the importance of the work is evident to all conservationists. The attitude of national park officials toward interpretive programs is reflected in the recommendation made by national park superintendents in conference at Santa Fe, N. Mex., in 1939:

“The interpretation of natural and human history in national park areas is recognized as a primary objective. The basis of such interpretation should be organized research. A sense of balance must exist in arranging research and interpretative functions, and the role of research, generally, in the National Park Service program should be reexamined. National Park Service problems are national in scope relating to physical, biological, and human values inherent in some of the most perishable of Federal possessions. They pertain to mental health, constructive living, social traditions, enjoyment of life, and other basic matters bearing on the health, education, recreation, and psychology of America’s population. The National Park Service is most advantageously situated to develop a national perspective in ethnology, history, wild-life, and aesthetic appreciation of scenery.

The Advisory Board on National Parks, Historic Sites, Buildings, and Monuments during its October 1940 meeting in Washington anticipated National Park Service cooperation with the Army and Navy in presenting the story of the national parks and historical reservations to the armed forces of the Nation. The recommendation of the Advisory Board follows:

“The Advisory Board believes the National Park Service’s interpretive program in national park areas, particularly the historical parks and monuments and the great national scenic areas, is one of the most valuable contributions by any Federal agency in promoting patriotism, in sustaining morale, and understanding of the fundamental principles of American democracy, and in inspiring love for our country. The Advisory Board would therefore suggest that the National Park Service’s interpretative program should be expanded by every means including publications, radio, motion pictures, guide service, park museums, etc., during this period of national exigency. It further recommends the National Park Service should immediately undertake the encouragement of national pride in our new armed forces as well as our citizenry which is so essential for the defense and preservation of our country. With the present organization in the National Park Service we feel that this branch of the Government is the most qualified to undertake in cooperation with the Army and Navy and private historical agencies this essential element in our defense organization.

In conclusion, it may be stated that 1940 has witnessed a critical review and a reexamination of those public agencies engaged in educational activities contributing to nationa



understanding of American values and democratic principles. National Park Service programs stand out in high relief among the activities directed toward attainment of citizen appreciation of our national heritage. Because of the advantageous position of national parks in the social scheme they are to be recognized as especially well situated

to develop a national perspective in native values and democratic ways.

Probably we are not placing too high an appraisal upon the value of national parks when we say that they constitute one of the most potent agencies in effecting mental preparedness and maintaining national morale.

## HISTORIC HOUSE RESTORATION

by E. MILBY BURTON, *Director of the Charleston Museum, Charleston, South Carolina*

THE AMERICAN PUBLIC, and especially the great traveling public, is becoming more and more familiar with the phrase "Historic House Museum." What constitutes an Historic House Museum? It is one of those houses which are found interesting enough to be exalted above their fellow houses and opened to the public for their edification or pleasure. But, more definitely, there are three groups of houses which come in this category. There is the house which, due to a combination of circumstances and architectural inspiration, merits the public's attention from the date of building. There is the house which, because of the birth, death or visit of a distinguished individual; by being the scene of an important event, or by housing the arts and sciences, reflects glory upon itself and is therefore of interest to the public. And there is the old house, whose claim to fame rests only on its persistence in surviving when all about it falls away. Much as the oldest inhabitant is a character, no matter how inferior he may have seemed to his contemporaries, so the oldest house in a locality, or of a type, is essentially historic and important.

These three types, or a combination of the three, constitute that great class of houses known as Historic House Museums.

Birth and death being the unpredictable and impractical events that they often are (even the great are born or die in strange places) and because of perfectly unconscious acts of distinguished people, all types of houses in all sorts of places are saved. In town or country, wealthy homes and small cottages, in good or bad taste, have been marked for survival. Washington, though he had foresight, could not have known how valuable his tours of America would be for future generations. But wherever he stayed, there another house is saved for posterity. Although it must not be construed that Washington's association with a house would alone constitute a reason for saving it.

Usually these resting places of the great are interesting in themselves due to their age or to their architecture. Some which today rely almost entirely upon the reflected glory

of their erstwhile owner, will become of more interest in themselves as time goes on. But apart from these there are those other houses whose value is intrinsic, whose interest lies in their perfection, or in the fact that they are a unique type of architecture. Thus, for one reason and another, many houses are saved from destruction, restored and made available for the benefit of the public. It is the purpose of this article to trace the steps in the process of restoration.

The interest in old houses in America is comparatively new, but that is also true of our country. The first house to be set apart and designated as an Historic House Museum is the Hasbrouck House in New York State, which had served as Washington's headquarters at Newburgh. It was acquired by the State in 1849 and placed in charge of the village trustees. In 1858 a great national movement bought Mount Vernon and it was made a shrine, which differs markedly from an Historic House Museum. In 1876 five more houses (two Washingtonian) were bought by various agencies; during the 80's five, and in the 90's about two a year. From that time on the rise was rapid, until today there are more than 400 scattered throughout the United States.

One reason for the impetus of the Historic House Museum has been brought about by the advent of the automobile and good roads and by the ever-growing desire of the vast traveling public to become acquainted with its own country. The record of the annual number of visits to the national parks provides some idea of the amount of travel continually taking place in America.

But there is more than the ownership of a car behind the movement. It has somewhat to do with cycles; with natural reactions. In the beginning America and her buildings were new. In a country so essentially young, oldness was not revered; oldness was of no value and of little consideration. Expansion and development, freedom and strength, occupied the thoughts of the people. But as time went on, as one style after another consumed its predecessor, completely obliterating all that was there before, as houses

had a chance to grow old, and as the additional value of rarity became theirs, people began to appreciate old buildings.

When the frontier of land was finally closed in 1890, ideas, other than financial, were given a chance to expand. The Nation began to have a cultural conscience, and thus it felt the need for a background. This need was expressed in a sudden love of all that was old, in the word "antique" becoming tremendously and inproportionately important, in a new appreciation of old houses. The Philadelphia Centennial in 1876 was a contributing factor to the movement. It made the people realize that they had a heritage of old buildings. In the midst of a grotesque period, the purity of Colonial styles was a great relief. Then, museums have educated people to the value of the old; historic novels have piqued their curiosity. Cameras have given them tools so that personally they can work with what they have seen. Rotogravures have suggested different approaches to the subject, and this has again added to their interest.

The earliest houses in America were but crude dwellings, entirely utilitarian. Any marked form that was followed, and any style, however slight, that was allowed to creep in was naturally a reflection of what the people had known in their home countries. As life became less a struggle for existence, the houses became more decorative. There are many handsome and elaborate so-called Georgian houses that survive today. Gradually as the building trade developed, slight variations in architecture arose, some due to the climate, some to the inclination of the people; and local styles of architecture, exceedingly interesting to study, were developed.

About the turn of the century the Georgian style was succeeded, first by the influence of the Adam brothers, and shortly afterwards by the classic, the introduction of which into this country is credited to Thomas Jefferson. Many of our beautiful mansions, following the classic tradition, are of this period. It was a time of wealth, and people poured money into buildings. The period lasted until about 1830-40, when, with the advent of machinery, and the beginning of the Victorian Age, an unfortunate style was adopted and followed. For a long period, 1840, until the early 1900's, it continued; what was lacking in beauty was made up in exaggeration. This type of building, sometimes called "Steam-boat Gothic," finally burnt itself out. One excess after another eventually satisfied the people's taste, until with a feeling, almost of revulsion, they turned away from the hideosities they had contrived to evolve with their tin god, Machinery, and looked upon the old where there was balance of line and purity of form and saw that it was good.

This trend away from the excesses of the machine back to the older forms had a decided influence on the rise in popularity and importance of the Historic House Museum.

There is a great deal of behind-the-scenes activity before one of these old houses can be presented to the public. In

the first place there is the initial movement which finally results in its purchase by one or more of many varied types of organization. This we will not investigate, nor will we go into the various organizations that can and do own houses or the special merit of various types of management. Suffice it to say that the house, due to the public's interest in old buildings, becomes the cause behind a movement; that it is purchased by an organization, with the avowed purpose of making it available to the public.

Now the immense task of restoration is faced. Nothing that is taken away can ever be just as it was before, and in dealing with an old house this is extremely important. The first fact for an individual or an organization to realize is that no matter how sympathetic or how sincere they may be in their efforts to prepare an old house for public consumption they are not experts. An architect, particularly one who has specialized in this specific field, should always be retained. If used in no other capacity, he should certainly be called in as a consultant. There are matters of stress and strain, of balance and proportion, that the layman cannot comprehend.

The second very important fact to grasp is that this is to be an accurate job, not an imaginative one. Even if truth is not stranger than fiction, and not as appealing, the value of the Historic House Museum is lost if the restorer deviates from the original plan to achieve an effect or an emphasis. In a house I have in mind, there are many H and L wrought iron hinges. Today these are treasured and it is customary to paint them black against a lighter colored wall so that they will be noticed. Naturally when the hinges were originally put in the house they were everyday accessories, and therefore they were usually painted with the rest of the woodwork, and the line of panelling was not broken. So in restoring a house these hinges must not be painted black unless definite evidence can be found that they were painted a different color from the wood in the beginning. The hinges must be left in their first inconspicuous state. This is true in the house I have in mind.

The first step in restoration is research. After that comes the even more difficult task of decision. It is necessary to go back to records of the house in deeds, wills, inventories, in old newspapers, or in chance correspondence; to ferret out all available information not only on the house in question, but on contemporary houses. Then with the accumulation of data, with all documentary evidence that can be found, plans are mapped out for the complete job. If there are major faults, such as sagging beams or cracking walls, the correction of which will cause other faults, then, with the help of the specialist, one must decide which is the lesser of the two evils. These matters and others like them have to be settled with each individual house.

But it is essential to remember the historic value of a house. In a usual renovation job, for utilitarian purposes, the status quo is simply something to change. In historic houses it has a decided worth. If there are not sufficient sums to do all the necessary work at once, it is better to



leave some rooms incomplete, than to have a careless, temporary, patched job, which destroys evidence.

In all restoration it is well to be able to show what was done and why it was done, and above all things leave documentary evidence. Where a wall has been scraped to obtain the original color leave a spot untouched to show the interested visitor. In queer chimney construction have a peep hole in the closet; in unusual beam placement have a hinged panel, so that the public can see them. But when in the process of restoration a replacement is necessary do not lie about it. Make the replacement of old material as nearly accurate as possible, then let age lend its benevolent patina. This gives the house a feeling of veracity, and leads the visitor to accept the rest of the building unquestingly. In one particular instance there was an old kitchen building in which the center chimney, fireplace and oven had completely disappeared. To restore the house it was necessary to have something in the kitchen. The base of the old chimney was found in the center of the building, but there were no plans for the original construction. In this case the fireplace and chimney in a house of exactly the same period was used as a model. This was measured and copied as to shape, size, etc. Old bricks of the kind used at the period the house was built were procured, and the chimney and fireplace were built up of solid old brick, just as they would have been originally. Instead of using modern mortar, old inventories were studied and ingredients that would have been used then, mortar with ochre and oyster shells, went into the building of the fireplace. The completed job was obviously recent construction, but was also essentially truthful, for it was built practically as it would have been by the original craftsmen. This is preferable to vain efforts to reproduce the look of age. In the same way the ceiling in the kitchen building was restored. In time this will weather and will take on a look of age, and when it is new it is interesting as an example of how work was once done.

In doing over an old house, one of the most difficult tasks is trying to find the correct color of the first paint. Again a great deal depends on the type of house being restored and its condition. Frequently it is not unusual to find six or seven coats of paint on a wall, and the question arises which was the original coat and what was its color. One of the most satisfactory ways of removing paint is by taking a dull knife and scraping off each coat separately. This is a tedious and tiresome job, but found to be a most effective and accurate method of ascertaining the color. It is not unusual to find one or two layers of priming paint on a wall. And one must be careful not to mistake this for the original finished color of the room. In addition it is advisable to send particles of the paint for analysis to Lead Industries, Inc. They are glad to do the analysis, as they are anxious to ascertain the ingredients of old paint.

In the middle of the eighteenth century colors were quite

intense, but with the advent of the Adam influence, toward the latter part of the century, color became softer and of a pastel shade. One other thing which must be taken into consideration is the amount of fading and dirt that had accumulated on the original coat before it was repainted.

The floors in an old house are usually in pretty poor condition; and frequently it is necessary to replace some of the old boards. This is always a problem, because a new board looks incongruous for years. One of the best solutions of the problem is to try to procure boards of a similar kind, which by careful workmanship can be placed along side the original so they will blend perfectly. Also there arises the problem of nailing the boards. They should be face nailed, or nailed from the side so the nails are hidden. Too many of us are prone to assume that all old floors are face nailed, but this is not the case, and the original manner of nailing should be duplicated.

Restoration goes farther than the building proper. It includes the surrounding land. Sometimes this land may be a large tract; sometimes only a small garden. Whatever it is, it should be planted so it will be historically accurate. Also it should carry out the mood of the building; it should lend atmosphere. Here it is forgivable to let the imagination wander a little, unless there is some way of determining definitely what was there originally. Then, by all means, the original plans should be reverted to. One particular house is restored as of 1790. Behind this house is a walled garden. It has been laid out with the greatest pains along the old-fashioned pattern of formal beds and brick lined paths. Also attention has been focused on the feeling that it is closed in. Walled gardens being unique to many people it is important to stress what might be called a selling point. But more than this has been done. No flower, shrub or tree is allowed in the garden that is not known to have been in this country before 1790. By reading advertisements in old newspapers, by turning again to the invaluable inventories, by consulting horticultural authorities the garden has been made as much an historical document as the house.

The last step, and a vitally important one, is the furnishing of the house. Some houses only become great years after they are built. In cases like this it is necessary to determine whether the house should be furnished as of the date of construction, or the period when it experienced its greatness. In Charleston, S. C., the Charleston Museum owns and administers the Heyward-Washington House. Built in 1750, the house was used by Washington on his visit to the city in 1790. The museum authorities have thought it in keeping to furnish the house as of the date of the President's visit. Of course the ideal way would be to find the inventory of the contents taken at the time when the house acquired greatness. And to have sufficient funds to purchase the various articles enumerated in the inventory and replace them in the house. But this is rarely possible, as most pieces of original furniture are widely scattered or have disappeared.

Kitchen of the Tempe Wick House, near Morristown, N. J., before restoration. (*National Park Service Photo.*)



Restored kitchen of the Wick House. (*National Park Service Photo.*)

Front elevation of Tempe Wick House prior to restoration. (*National Park Service Photo.*)



The Wick House during restoration operations. (*National Park Service Photo.*)





This trailside shelter is on the north rim of Grand Canyon National Park, Arizona.



Shelter at the entrance to caverns at Longhorn Caverns State Park, Texas.

This trailside shelter on Bright Angel Trail, Grand Canyon National Park, fits well into the landscape.



It must be remembered that people during their lives were continually acquiring furniture and other household articles. While it is perfectly true that they had sets of furniture of one particular period, it must not be assumed that they discarded all of their old furniture. Certainly they kept the best part of the old. Therefore, it is permissible to find various styles of furniture and other articles in one room. Should one want to restore a house of, say 1800, it would be incongruous to have some furniture in it that was obviously made in the 1820's, but perfectly in order to have furniture made prior to the date of construction of the house.

Should the house be furnished with a cosmopolitan touch? Should it be English, French, American in origin as it might have been in a wealthy home of the time? Anyone with sufficient funds, before the present war, could go abroad and purchase untold amounts of furniture, and put it in a house. But ask yourself the question: Would I have found such an outlay at the time the house achieved prominence?

Or should the house limit itself to Americans? Or should it still further limit itself to locally made pieces? Some houses stress local craftsmanship, although it is impossible to exclude other pieces. Still the emphasis is placed on furniture made in the vicinity. When enough of this is eventually collected the house will be double interesting for the connoisseur, and it should not be less so to the casual visitor. But it is necessary to determine in the

beginning what course to follow, and to furnish the house with that end in view.

One of the hardest and most diplomatic jobs of all is to refuse gracefully furniture offered to you which is not in accord with the house. Nothing can ruin a house more quickly than having a lot of incongruous furniture and furnishings in it. If funds are not sufficient, it is far better to have empty spaces in a room. Frequently some generous person will come along and give the piece that fits in a particular space. Also, by not cluttering up the room with unnecessary articles, one can get a far better idea of the type of architecture.

In furnishing there is a still further consideration—reproductions. To some museum executives the word carries a certain feeling of repugnance, but a good reproduction is not to be frowned upon. Of course the perfect original is much to be preferred, but a good reproduction is better than a crude or inappropriate original. It is well to take a stand on the matter of using originals and reproductions when you first begin to furnish a house. It is sometimes found wise to use temporary reproductions, if they are well done, until the correct originals can be located. For it must be remembered that even with ample funds it takes time and perseverance to locate the exact furniture of the exact type that is needed.

But, above all, let each house develop a personality and, with its own approach to its own problems, present itself as an individual to the great traveling public of America.

## LANDSCAPE ARCHITECTURE IN THE SOUTHWEST

by HARVEY H. CORNELL, *Regional Landscape Architect, Region III, National Park Service*

THAT WELL-MEANING sage who said, "Go west, young man" covered a lot of geography in his effort to inspire and encourage the young and ambitious. The heedful landscape architect who steered his course into the great Southwest found glorious scenery on every hand, but a most contrary and unsympathetic Mother Nature, confronting him with such formidable weapons as cloudbursts, drought, heat and sand, with rugged mountain barriers thrown in for good measure.

In his initial efforts to mold her southwestern landscape to the more intimate adjustments for human use and enjoyment, he too frequently attempted a face-lifting process and as like as not, ended up by giving her a permanent scar. He soon learned to know her whims. For example, in the broad sense, she prefers wild flowers to the garden variety and if allowed to have her way, will supply them in great profusion and without much effort.

All of this seems to place Mother Nature on a pretty high pedestal, but here in the Southwest she is unusually important and the sooner you take her into your confidence, the better.

It follows, therefore, that the utmost in technical skill is necessary in successfully adapting man-made creations to the typical southwestern landscape. The following discussions deal principally with the adaptation to site of park structures and therefore concern the close blending of both the architectural and landscape architectural phases of the problems involved.

It is of course understood that occasionally a situation occurs where the architectural solution completely dominates the scene, and where the purely landscape phases are held in the background, with no apparent harmful effects. In these cases the structure is usually completed prior to the establishment of permanent ground forms and planting



cover, the landscape development being considered little more than the "collar and tie" of the completed project.

This lack of close technical coordination will nearly always cause trouble before the job is done, especially where site conditions are difficult. This would be particularly true in the West where mistakes resulting through this lack of cooperation are extremely hard to hide.

The delicate adjustment of seemingly opposing objectives, namely, the preservation and protection of the site on one hand, and the adaptation to man's use on the other hand, is emphasized under the following major considerations. If, in the initial approach to a problem, each of these points could receive its just share of attention, I am sure there would be less grief in this world for the landscape architect.

#### *Determination of the Essentials*

No designer has a complete grasp of a problem unless he is able to recognize the difference between essentials and nonessentials. With only the essentials in mind, and the courage to provide for them through the Rule of Simplicity, one has a strong guarantee to the successful solution of any problem.

I can recall any number of cases where the designer has permitted his enthusiasm to carry him away beyond actual needs. For example, there is the parking area with double the needed capacity, the excessive width of roadway, with all the related difficulties in adjustment to the bordering landscape, and the oversize building with only partially used floor space.

There is a great deal of difference in *planning* for the future and *building* for the future. The master lay-out, indicating an attempted long range solution for a specific area, may fail miserably in the recognition of eventual use trends, but usually little damage is done. In this respect, we are somewhat protected by the fact that we cannot achieve beyond our capacities to plan and visualize. Yet time and again we do build beyond practical requirements.

#### *Limitation of Site*

If the essentials of a particular problem are thoroughly understood and accepted, plans for the development involved should not require the utilization of more space than is actually necessary. In other words, the limitation of site development, whether it be for a section of road, a building, or even a flower garden, should make it possible to confine the work to only that amount of space necessary to permit a satisfactory solution.

Not long ago I observed a section of park road in this part of the country where the actual total width was only a small part of the offending right-of-way strip that literally had blasted its way through natural vegetation, completely ignoring the direction of existing contours. The result was a continuous bordering scar of borrow pits, reckless tree cutting, and the permanent scars of cut and fill slopes.

In the case of single buildings, it is almost always essential that the floor grades hug the contours as closely as practical

without sacrificing the convenience of interior arrangement, to prevent unnecessary encroachment of construction upon existing ground surfaces.

Where more than one building is involved in the solution of a problem, a compact arrangement should be given first consideration to insure economical use of space. The advantages in protection, in simplified operation and maintenance should be sufficient defense for such a premise. An excellent example of compact grouping has of necessity occurred in many of our national monuments where in each case a headquarters building, a small museum, several residences, with garage, storage shed, work shops, etc., are arranged around a single open space or patio. Even with utility buildings, improvement in modern design and use has virtually eliminated all obnoxious features, and such buildings can be located closely adjoining a residence without becoming an offending factor. The prevalent belief that all building units should be widely spaced presents a rather overcautious attitude when one considers the effectiveness of the present day application of fire protective measures.

The Indian Trading Post is another example of the conservative absorption of space. You do not find the house here, the store a couple of blocks over there and the corrals a quarter of a mile around the corner. You find them all in a fairly compact group, the administrative, residential and utility areas closely related to permit them to function with the least expenditure of time and labor.

#### *Adaptation to Site*

This is perhaps the most difficult phase of all. There is too often the tendency to adjust the site to fit the plans rather than adjust the plans to fit the site.

Did you ever prepare a plan for one particular site and then, for some reason or other, attempt to fit the plan without change to an entirely new site? An experience of this kind will convince you that no two sites are identical.

The molding of construction to natural contours is an art in itself. Insufficient field data is a too frequent alibi. Accurate topographical surveys should be required right at the start.

For that matter, we can learn a great deal on this point from the older residents of the country, including the Pueblo Indians, the Spanish Americans, and the Mormons. For protection, the Pueblo Indians often placed their compactly arranged, several-story Pueblos on restricted mesas, the adobe and rock construction blending completely with every detail of the site.

The picturesque Spanish and Mexican villages have hardly disturbed the hillsides upon which they clustered. The frugal, persevering Mormons took every advantage of natural conditions with uncanny skill. As pioneering irrigation engineers, they have no equal. A Mormon settlement may tell a story of hardship but never of failure. In spite of somewhat primitive methods, their attention even to architectural detail was superb.

We as architects could well afford to pay more attention to the advantages of different floor levels in structures assigned to irregular sites. We use steps between floors. Therefore, why be so hesitant about using them between rooms?

In determining the architectural style of a building, adaptation of structure to site should largely influence the decision of the architect. For this reason he is very apt to follow closely the traditional trends already firmly established in the locality. In this way, problems are simplified as he may then profit from the experience of others who have gone before him.

For example, he would find it relatively simple to adapt his design to the Pueblo style, particularly in parts of New Mexico and Arizona. On the other hand, to attempt to blend the Cape Cod Colonial into the native desert landscape would not only meet with criticism or indifference but would present a most acute problem in relation to adaptation to site. Pueblo architecture fortunately would not appear at home in the more elaborate setting of well kept lawns and widespread shade trees.

Concerning the buildings within our national parks, the architect should hold firmly to the belief that under such conditions park architecture should be inconspicuous, should have repose and a feeling of being indigenous to the locality.

The blending of a smoothly flowing park road to its surroundings represents the ultimate in adaptation to site planning. In this respect, close cooperation between the engineer and the landscape architect is an imperative essential.

Granted that every reasonable precaution should be taken to prevent unnecessary disturbance of existing conditions bordering and within the right-of-way, the extreme in precaution may work in the opposite direction and defeat the original intent to blend, permanently and effectively, the road construction with the surrounding landscape.

For example, I have seen a single tree within a thickly forested area become the ruling factor in determining alignment and gradient of a park road. The tree was located on a proposed cut slope, entirely too close to the edge of the road. Its retention meant unusual protective measures and prevented the establishment of stabilized and permanent ground forms. Its eventual death was a certainty from the beginning.

The following quotation expresses the point admirably: "In gradient and alinement the road should lie comfortably upon the topography, appearing to occupy a miraculously favorable natural location, rather than to be cruelly forced through against the lay of the land."

#### *Protection of Site*

There are many locations in the country at large where the problem of protection of site is of comparatively little importance. Not so in the Southwest where semiarid conditions require a deep respect for anything a specific site

might have to offer in the way of long established ground forms and meager but welcome vegetation.

Where Nature is especially kind in the provision of ample rainfall and moderate temperatures, we all have observed the ease with which the particularly unattractive site may be retailored to fit any desired situation.

Under the less favorable conditions so prevalent in the West, it is common practice to specify that grounds with natural vegetation be vigorously protected from the encroachment of foundation excavations and the wear and tear of construction equipment. For example, the spacious National Park Service regional headquarters building in Santa Fe was literally confined to its four dimensions by means of a wire fence. The same vigorous application of rule applies to smaller structures as well. The picnic *remada* need only become a part of its natural surroundings.

In the construction of roads every precaution must be taken to prevent scars in the form of borrow pits and cut and fill slopes. Once destroyed, the restoration of the semiarid landscape with its brilliant wild flowers and cacti will require the extremes in skill, patience and perseverance. Even the road contractors' camps must be carefully located where they will do the least damage.

Few park roads are now constructed without strict adherence to established policies covering the protection of the landscape. State highway departments employ capable landscape architects who share with the engineers the responsibilities of location, alinement and gradient. The horticulturally inclined, so-called landscape architect who does little more than cover slopes and fill intersection triangles is fortunately becoming a rather scarce article, for he is of little real value to his employer. His responsibilities are being absorbed by the individual whose special training may be applied to all important phases of road construction.

#### *Improvement of Site*

If careful attention has been given all previous points in this discussion, the problems associated with improvement of site need not be too difficult. They concern primarily the final fixtures or minor details and provide the completed or finished appearance so essential to a good job.

In this respect, the use of plant materials becomes a lively issue. One school of thought advocates a bountiful application of natives and exotics, the ultimate to create a veritable oasis of the site involved. The opposing thinkers frown upon such uncontrolled ambitions and pose as desert purists, holding only to the limited use of native plants.

While problems differ widely, it would appear that a middle ground is possible. Generally dry conditions and the usual scarcity of water would seem to dictate a conservative attitude on the part of all. Yet the desire for coolness and shade should not be denied if living conditions are to be reasonably normal and pleasant.

I am sure we can take lessons from those who have preceded us. Admittedly facing adverse conditions, they nevertheless created attractive homes and gardens, largely



through the rules of limitation and concentration. Their efforts were centered, not on the grounds as a whole, but were confined to smaller enclosures or patios, well protected and therefore easily maintained. In this way every drop of water was put to use. To me there are no other gardens so attractive as the southwestern patios, so intimately a part of the dwellings they adorn. Here exotics do not appear out of place. Fruit trees and choice succulents thrive to perfection.

I recall a large group of residences within one of our national parks where the immediate surroundings have been for many years as bleak as a prison yard. A recent decision to permit the use of shade trees in this area, exotics or otherwise, seemed to me to be the human thing to do. The public, I am sure, has never appreciated the barren though natural condition of this particular site.

On the other hand, there are examples where the adopted planting methods certainly do not indicate the full appreciation and understanding of the natural landscape. The long ribbon of parkway or highway crossing the arid stretches of western country seldom becomes monotonous. There are the unbelievable masses of wild flowers, the ever changing colors from sunrise to sunset, and the impressive

breadth of the landscape itself. Yet there are roadside improvement programs, introducing all forms of exotic growth, which, if they thrive, will never blend into the natural surroundings. The uninitiated visitor from the East is coming West to see the West and is little impressed by man's efforts to alter an otherwise perfectly satisfactory landscape.

The photographs accompanying this article have not been referred to specifically but they do indicate rather successful results in relation to the problems of adaptation to site.

In closing a word from our own Director Drury, appearing in *American Forests*, July 1938, should be heeded by all good landscape architects, western or otherwise. It reads as follows and warns us, "To resist the pressure of . . . recreational enthusiasm, which considers that piece of level land wasted which is not teeming with citizens engaged in healthful and innocent outdoor sports, regardless of their appropriateness to the site," and cautions us further to resist that form of, "Virtuosity, the aim of which is to 'Gild the Lily' or remake Nature's design in keeping with the preconceived notions of well-meaning individuals or groups, for the glory of themselves and their technique—or merely to satisfy an itch to monkey with the landscape."

## LANDSCAPE PLANNING FOR COUNTY PARKS

by CHANCE S. HILL, *Landscape Architect, Consultant, Du Page County Forest Preserve District, Illinois*

DESIGN PROBLEMS in all fields of endeavor are controlled by many factors, but the most important are imposed by functional requirements. If the purposes of a design are not thoroughly understood and kept clearly in mind as it takes form, the result cannot be a successful solution of the problem.

Designers of the various types of public park properties must maintain an open mind and proceed with a full and careful analysis of the requirements of each project not only as to its character and use, but with a keen appreciation for the adaptation of the design to the physical characteristics of the site. The standards that control the planning of a city playground differ from those of the larger city playfield just as the requirements for the design of city and county parks are not alike. The larger city park property should have many of the essential characteristics of the county park. The area should, if possible, be situated along a stream or by a lake, contain woodlands and open timber, possess the benefit and charm of such interesting topographical features as hills or rolling land and meadows with the interest of birds and small animals. There the

similarity ends, for the use requirements are radically different.

The city park must of necessity be designed to afford a full and complete recreational program for its thousands of patrons. These recreational activities must be active and passive in character to serve the requirements of all ages and both sexes. Its design should include a carefully studied circulatory system of drives, parking areas and walks, a refectory, gardens, comfort stations, possibly a zoo and golf course, facilities for boating, bathing, skating, baseball, soft ball, tennis, playground equipment and other minor recreational features. Such a design demands skillful planting of trees and shrubs to impart a feeling of restfulness, coolness and quiet that can only be afforded by the use of growing things. Natural scenery should also be preserved and protected as much as such intensive usage will permit, but the resulting picture is at best of a man-made, artificially created area.

In contrast, the county park problem involves the protection of the natural beauties of fine, picturesque areas and the limiting of recreational features to such activities

as fit becomingly into them. The county park deemphasizes strenuous recreation with man-made equipment and proposes to take the city dweller away from the heat, noise, and distracting artificialities of his busy city life to enjoy the peace and quiet of natural surroundings and scenery.

From time immemorial man has had a deep craving for the intangible satisfaction that only association with nature can afford, the enjoyment of intimate contact with woodland moods of sun and shadow, the charm of running water, the changing marshes, wild flowers, blue skies, and clouds, and all the varied flora and fauna of the countryside. This innate craving accounts for the tremendous vacation and week end exodus from the city to the ocean, the streams and lakes, resort countries and the county, State, and national parks.

The preservation and development of such public areas for the use of the people is thus a major problem of American life. The Federal Government has, through its great interest and help, given a tremendous impetus to their acquisition and development within the last decade. As a result the questions and policies of proper usage and development in State and county park properties has had wide attention and the benefit of the experience of many agencies. The result has been a generally accepted thesis for their practical development. This is primarily based on the maintenance of a nice balance between the preservation of the natural qualities of the areas against the encroachment of ill-considered recreational facilities more easily and properly enjoyed in city parks.

County park properties should first of all be chosen to embrace outstanding examples of the natural scenery of the region. Fortunately such parks are visited through the use of automobiles and thus the question of accessibility (other than all-weather roads) need not be a consideration. The areas should preferably be of generous acreage. This is a vital factor in the ease and cost of maintenance of a county park system, for a few large areas are more economically managed than many small ones. If practical, parkways, running along water courses or over interesting terrain joining the units of a county system would be highly desirable and add greatly to the effectiveness of the various properties.

The necessary facilities for the public in such areas are fairly well fixed by experience and usage. The requirements include the provision for barricaded parking areas with suitable approach roads, pure water and sanitary facilities, a circulatory system of footpaths and horse trails opening up and making accessible the various interesting features, picnicking areas and equipment, shelters, open spaces for games, and where conditions warrant such special features as boating and winter sports.

Roads and parking spaces are at best necessary evils in such naturalistic preserves and should be kept to a minimum. As a general rule it is more satisfactory to have short approach roads from the boundaries to strategically located parking lots, than to employ winding roads through

the preserve leading to interior spaces. All vehicle traffic should be confined to the roads and parking areas for the protection of vegetation. This necessitates the use of various types of barriers through open stretches with a resulting high cost of construction and the introduction of artificiality into a natural picture. Perhaps two of the best solutions to this vexing problem are the use of shallow, sodded barrier ditches, and the planting of thickets of young saplings where such treatment would be appropriate. The construction of wooden, concrete, stone, or cable guard rails is often necessary, but never a happy solution to such a problem. The best way of minimizing this evil is to plan whenever possible for the elimination of long drives. A double dividend results through causing a lowering of construction and maintenance costs and producing a more naturally conceived and treated area.

The proper location and quality of wells and location and design of sanitary facilities are of great importance. Generally, both are associated with parking areas where they are readily accessible in entering or leaving the preserve and with the larger picnic spaces. The wells should be safe from contamination and conveniently located throughout the park, on occasion becoming a focal and interesting point in an important area when covered with appropriate shelters in picturesque settings.

Foot and horse trails should be designed to lead the picnickers, hikers, and riders off into the park, making accessible interesting and picturesque natural features. In large preserves the trails may be numbered and referenced to a key map placed in the park spaces and stable courts so that patrons can plan a hike or ride of a given length, or reach a certain picnic area or feature without getting lost and experiencing undue waste of time. Foot trails need not be expensively constructed. In many cases where soil conditions are favorable they require merely clearing, grading, and crowning with possibly a light gravelling or cindering of the surface. Paths that receive heavy usage should be more carefully built, however, to stand up under the greater wear. Spent tan bark is an ideal surfacing for paths in intensively used woodland areas where it is desired to present a more refined appearance perfectly in keeping with the natural setting. Horse trails should be graded to ample crown and, where necessary, provided with side ditches and culverts to maintain a dry subgrade. They may be surfaced with cinders or left as earthen trails. It is a wise thing, when possible, to have some fords or spongy clay sections along the way to permit moistening of the horses' hoofs.

Picnicking may be confined to specially segregated plots where the tables, benches, and fireplaces are concentrated into an intensified use area or the picnickers may be decentralized and sent out along trails into various small, attractively located units. The first method reduces maintenance cost and saves wear and tear on other spaces, but it does not offer the enjoyment so many people derive from being off by themselves in the smaller units with the privacy



so loved by family groups. Areas should be conveniently located near sanitary facilities and good water, and supplied with fireplaces, incinerators, picnic tables, and benches. This equipment should be designed in portable units. They can thus be moved when it becomes apparent that an area is suffering from prolonged use and a rest should be prescribed for it as for an overly tired worker. The larger picnic areas should be located with open spaces suitable for running games and softball.

The most popular county parks are generally associated with water, either along streams or on lakes. This is due to the fascination that water always exerts when people are pleasure bent. There is something about water and its part in natural scenery that attracts people as though it were a great magnet.

The construction work that is necessary in connection with the development of water areas is of particular importance, for great harm can be done through the building of ill considered and poorly planned projects closely related to the shores. Boathouses, bridges, and dams should all have particular study and attention that the location, scale, design, and material used be appropriate and that they fit naturally and unobtrusively into the landscape setting. Dams may become particularly harsh and disturbing in such a development scheme unless the first conception and mature plans have had careful consideration. Concrete, an extremely artificial material in appearance, is structurally essential for a permanent dam. Its use, however, can be so concealed that the finished product will be an attractive feature in the naturalistic picture. This may be accomplished through the skillful use of native stone employed in a natural manner as a facing to the weir itself and the shore abutments. Such details should never be neglected in planning natural areas. This same painstaking care should be apparent in the location, choice of material, design and setting of all structures that must find their way into naturalistic parks. Entrance gateways, shelters, concessions stands, boathouses, dams, and latrines should all be deftly and unobtrusively inserted into the natural picture for there is no surer evidence of successful design than the feeling that

such artificial necessities are a part of their environment.

The choice of materials indigenous to a given area is highly important in securing such restful and harmonious effects although their proper use is equally important, as evidenced in the employing of so important a material as native stone. As a general rule it is most intelligently used in park structures if guided by a thorough knowledge of its natural formations. These, when simulated and employed in the building of artificial structures, impart to them something of the character of the region and produce a feeling that all is well with the finished picture.

Plantings in county park areas should also be limited to the use of native plant materials. Ample varieties are found in most regions for successful work. Naturalistic plantings in such areas should seldom be undertaken for ornamental planting alone, but for such definite reasons as reforestation, the naturalizing of suitable plant materials along water areas, the elimination of construction scars through proper coverings, the naturalistic harmonization of buildings, other structures and trails with their surroundings, and the restoration of suitable ground cover and undergrowth plantings in depleted woodlands. Here again every effort should be made to fit the new plants into their situations according to their proper requirements as to soil, light, moisture and plant association. Great errors in naturalistic plantings can never be made if the work is guided by a thorough knowledge of the handiwork of mother nature.

This brief outline of some of the underlying principles governing county park design as applied to present needs and usages may vary and change with the years. Who knows what inventions may alter many of the above requirements. We may eventually arrive and leave such areas by the air, and the difficult road and automobile parking problems will become a thing of the past, only to be superseded by the question of how to provide for the flivver plane of the future. The struggle to preserve the natural character of our public areas will always be with us, however, and should ever be the guiding influence in their design and management.

# SPECIAL FACTORS INVOLVED IN A RECREATION STUDY FOR THE TERRITORY OF HAWAII

by JOSEPH F. KUNESH, *Director, Hawaii Territorial Planning Board*

SPECIAL FACTORS affecting a recreation study of Hawaii constitute unique and interesting problems for the planner. The fact that travel to the islands from the mainland and from island to island is limited to air and water transportation presents the first consideration. Of course, it is the tourists who are affected most; and tourist travel is Hawaii's third largest business. The use of automobiles for recreational travel, even by the native population, is limited largely to the island of residence. This transportation situation must be taken into early consideration although it has largely been solved for the tourists by the steamship companies who provide adequately for those on planned vacations.

The physical geography of the islands and the character of the people provide factors quite as unique as the transportation situation. It does not take a visitor to the islands long to realize that here are people from all parts of the globe with a great diversity of cultural backgrounds, and that there is evolving a new people as the result of the amalgamation of this great diversity of races with the Hawaiian. The Japanese, and to a less extent, the Caucasians, seem to maintain their racial and cultural integrities and by so doing, complicate the problem. One thing all these people have in common: a need for outdoor recreation. Whether the recreational needs of a people so diversified in background can be synthesized into a recreation plan still remains to be determined.

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Additional to the traveling public and the native residents are the transient Army and Navy people. When one sees the majestic Pacific Fleet anchored at Honolulu's door or at Lahaina Roads with its thousands of sailors and thousands of soldiers manning the islands' defenses, the problem of providing recreation for all looms large indeed. The problem is complicated by the fact that these groups throw the male population of the community out of balance with a group of men, young in years, and anxious to see the world. Yet, in spite of this diversity of population, the solution of the recreational problem does not seem entirely hopeless. Nature has done her bit in Hawaii. When one stops at the "Pali" on the island of Oahu and views the greatest and steepest of mountains flanked by the bluest and clearest of tropical seas, with an enchanting tropical sky over all, he is aware of a wealth of scenic resources, in which should be found areas usable for genuine recreation.

The inspiration of the Pali view inaugurates a fascinating panorama of unusual factors involved in a Recreation Study of Hawaii.

## *Natural Resources*

Outstanding among the factors involved in considering recreation in Hawaii is a formidable background of natural resources:

1. Hawaii enjoys an insular isolation in its Mid-Pacific location unique to men and women who seek the most nearly complete change from our living routine in unorganized relaxation and play enjoyed in natural environment. How many enchanting tales of islands and their life and romance have served authors and poets in expression of the spirit of recreation.
2. Hawaii is the only integral part of the United States below the Tropic of Cancer. As a tropical land, then, located south of the southernmost tips of our Southern States, Hawaii offers tropical conditions and environment for a different order of recreation.
3. Tempered by the continuous northeast trade winds Hawaii offers to its residents and visitors a climate of unusual health and attractiveness. There are no malarial conditions and the waters are free of dreaded tropical pathological contamination.
4. Hawaii is an archipelago of eight large islands separated by channels of deep Pacific waters and clear never-smoky air rendering the islands largely intervisible.
5. Each of the islands offers ranges of altitude, topography, temperature, verdure and rainfall not found in any one State. Altitudes range from sea level to nearly 14,000 feet above sea level. None of the six larger islands is less than 3,000 feet above sea level at its peak mountain. Topography ranges from tidal flats to practically vertical "pali" of sheer drops of thousands of feet. The summer peak temperatures seldom exceed 80° F., while the tops of Mauna Kea, Mauna Loa, and Haleakala appear with their winter snow caps, affording the winter recreation possibilities of the Northern States. Verdure ranges from that of "baking sand" deserts to the ever-green jungles of the Tropics. Rainfall ranges from less than 10 inches per year in the southwestern corner of each of the islands to nearly 600 inches per year on Mount Waialeale on the Isle of Kauai, rivaling with Mount Cherrapunji, India, as the wettest spot on planet Earth. Definitely distinct ecological regions, however, give rise to a wide range of definite classifications of recreational possibilities.
6. Insular in nature the several islands offer horizons of



ocean scenery from almost any spot on any of the islands: the most inland point is only 28.5 miles from the coast.

7. The coast line of the Hawaiian Islands, totaling 875 miles, is exceeded by those of only three Southern States of the Nation. It is a coast ranging from straight-beach flat coastal plains to the most straight-walled "api" of even and tortuous configurations.

8. More than one-third of the population is Oriental and opportunities are offered for a blend of treatment of cultures of the East as well as the West, not offered elsewhere in the United States.

9. And lastly, Hawaii is a land of volcanoes! Playful, active volcanoes! Nowhere in the United States are active volcanoes a part of the recreational scheme. Hawaii offers a geologic background for observation and study ranging over the last 20,000 years. Lava flows from several million years old, through successive ages of several thousands of years to those of yesterday and today, provide opportunities for study of the ages down to Now!

There is a comparative scarcity of the recent in the historic with, however, an abundance of the colorful pageantry associated with the majestic in Hawaiian Royalty. And off-setting an absence of the usual mainland's fauna is a wealth of the unusual in Hawaii's flora. Hawaii has no snakes, no tarantulas, no dangerous beasts of the forests, no monsters; as well as no poison ivy, no tempting poison mushrooms, no nettle to spoil the fun of a stroll, a hike—it is in fact quite safe for one caught out late in the wilds to lie down on his trail to sleep and rest undisturbed anywhere on the islands! Even a "soaking" in Hawaii's "liquid sunshine" soothes the weary, and illness does not follow wet feet!

In addition to the values of its natural resources, Hawaii presents interesting factors different from those of more or less typical "unusualness" in the mainland. With their unique abundance of personality, the Hawaiian Islands have developed in their isolated insular way as the Paradise of the Pacific. In fact, quite correctly, the entire archipelago may be considered as one whole unit of America's play-grounds.

#### *Socio-Economic Factors*

There are socio-economic factors which need consideration in our approach to a recreation study in Hawaii.

In the first place, Hawaii is highly *recreation-minded* as it has a right to be. It is, however, very *underdeveloped* and hidden opportunities exist in potential areas of "unorganized recreation." Steepness, humidity, dryness, jungles, rockiness, and other of Nature's own have acted as barriers in the development of trails and facilities which would make accessible little-known beauty spots for the enjoyment of all. *Artificialities*—some of which are good and important controls—have added to the difficulties of development of our natural recreational resources. Creation of public forest reserves has created a barrier to their enjoyment in our effort to protect watersheds against *pollution* of valuable

mountain waters. *Private ownership* and *high costs of land*, in some cases, preclude acquisition of beautiful mountain and beach sites. In some instances *haphazard development* has rendered difficult corrective planning to take best advantage of Nature's offerings. There are also military considerations.

Although the Territory owns over 1,500,000 acres in 7,600 parcels well distributed on all of the islands and controls over 1,000,000 acres of public and private forest reserve lands, there are in Hawaii today practically no Territorial parks, no Territorial historical parks, no Territorial parkways, no Territorial monuments, or no Territorial memorials.

With the Territory's present land laws in effect, the trend is toward an increase rather than a decrease in government acreage. Privately owned lands are held by large estates, plantations, and individuals. Government lands comprise 43.5 percent of the area of the Territory, and private lands 56.5 percent. The government lands consist of a 38.6 percentage of Territorial lands and a 4.9 percentage of Federal lands. The private lands can be broken down to a 9.1 percentage for the largest single owner; 28.6 percent for the 10 largest owners (including the largest single owner); 47.8 percent for the 100 largest owners (including the 10 largest); and 8.7 percent for other owners.

Most of the government lands are under the control of the Commissioner of Public Lands and the Board of Forestry and Agriculture. The Federal Government controls a large acreage in its two sections of Hawaii National Park on the Islands of Hawaii (Kilauea Section) and Maui (Haleakala Section) and military reservations. The total area of the Territory of 6,407 square miles is 1 percent that of the Territory of Alaska and less than 1.2 percent of the entire area of the 48 States, Territories, and Possessions of 3,738,395 square miles.

*Territorial lands* have been transferred from the Commissioner of Public Lands to other Territorial departments and to the counties for various uses such as sites for buildings and institutions. The public school grounds in 1940 consisted of 1,700 acres, most of which were originally government land or acquired by exchange of Territorial land. Of the 4,662 acres in county parks, nearly all were transferred to the counties by the Territory. All Territorial lands set aside for public purposes total 37,755 acres. The combined acreage of Territory and Federal lands in 1938 exceeded that of 1900 by approximately 70,000 acres. The purchases of private land by the Federal Government more than offset the sales of public lands by the Territory. Many large estates are kept intact as single large holdings. There is a reluctance on the part of large estates to sell land.

Homestead delinquencies constitute another factor for consideration. Surrendered homestead holdings are leased and made revenue-bearing rather than rehomesteaded. Sugar quota and lower prices of sugar have brought about the discontinuance of the leasing of some government lands for cultivation by lessees and the using of them for pasturage

purposes. Large areas of government lands heretofore leased for the cultivation of pineapples have been permitted to go back to pasture. "Every effort is being made nevertheless" the Commissioner writes, "to keep under lease all available Government land for revenue-bearing purposes and at the same time, offer for sale, in accordance with law, to individuals such small areas as can be developed into home lots in order to encourage home ownership."

*Historic background.*—An important factor for our consideration is the *historic background*. It must be remembered that up to 1900—only 40 years ago—Hawaii was an independent monarchy and influenced only in developing American ideals by the early teachings, beginning about 1830, of the missionaries.

In days previous to just a century ago all the lands belonged to the King and were held for him by the high chiefs in fief on condition of tribute and military service. In 1848, however, a division of lands known as the Great Mahele was effectuated whereby all lands were divided so the King allowed one-third of all the land to his chiefs, one-third to the common people and retained the remaining one-third for himself. Recognizing the need for a public domain for proceeds for the national treasury and purchase by his subjects of the lands they needed, the King made a further division in his share of lands, setting apart two-thirds for the government and reserving the remainder for himself as his own private estate. Thus came into being the former lands known henceforth as *government lands* and the latter as *crown lands*. Original titles of all lands in Hawaii are derived from three sources of Land Commission Awards including awards on chiefs' and commoners' lands from the sales of government lands and from the sale of crown lands. These are Royal Patent (Grant) and Land Patent (Grant) conveyances, now deposited in the Office of the Commissioner of Public Lands. Another classification resulted known as *Kamehameha deeds*. The merging of crown lands and government lands gave rise to "*public*" lands.

The act of Congress creating the Territory of Hawaii, known as the Organic Act, approved April 30, 1900, provided "that the public property ceded and transferred to the United States by the Republic of Hawaii . . . shall be maintained, managed and cared for by it, at its own expense, until otherwise provided for by Congress, or taken for the uses and purposes of the United States by direction of the President or of the Governor of Hawaii."

By an act of Congress approved July 9, 1921, certain specified lands in the Territory of Hawaii were set apart to be administered by the Hawaiian Homes Commission composed of five members for the benefit of the "native Hawaiians." These lands are thus taken from the control of the Commissioner of Public Lands and are not considered as a part of the Territorial public lands.

In 1903 the Territorial Legislature created the land court authorized to conduct hearings and issue decrees in connection with the registration of title to lands.

The manner in which boundaries were established, word

of mouth records, divisions along ridges, streams, stone walls, artificial monuments, etc., gave rise to a recognition to this day of the ancient boundaries and known individually as the *moku* (island chief's districts), *ahupuaa* (minor chiefs' divisions), *ili* (minor ahupuaa), *lele* (minor ili), *loi* (taro patch), *moo* and *kihapai* (cultivated dry patch), and *pahale* (house lots). A *kuleana* is a small tract of land "inside another's land." A *konohiki*, originally a chief's land, later meant the chief himself and we now speak of "konohiki land."

A part of the ahupuaa was the ocean abutting the land and the exclusive right to fish in its waters. A fishing right extended from low-water mark to the reef. If no reef existed the distance was 1 mile. Fisheries appurtenant to government lands were made free to all the people. The chief's fisheries were tabued to one species of fish a year, the tenants of the ahupuaa having rights to the remainder. This law, in modified form, is still in effect. Chiefs' fisheries are known as "konohiki" fisheries; they present barriers to common "unorganized recreation."

The growth of recreational areas open to the public in Hawaii is indicated in the following tabulation:

	1900		1920		1938	
	Num- ber	Acre- age	Num- ber	Acre- age	Num- ber	Acre- age
National . . . . .			1	119, 747	1	162, 047
Hawaiian Homes Commission . . . . .					2	31
Territorial . . . . .					5	152
County . . . . .	8	21. 44	48	1, 634	187	4, 662
Private . . . . .			4	122	22	1, 600
Youth camps . . . . .					17	121
Total . . . . .	8	21. 44	53	121, 503	234	168, 613

These are historic factors interesting in connection with the setting aside of additional lands for parks, parkways, and recreational areas.

*Forestry.*—The first forest reserve in Hawaii was established in the year 1903. For 10 years boundaries were delineated until by 1914 there were 798,214 acres set aside, 68 percent of which belonged to the Government. Private areas within these limits were to be treated by the owner as protected forests to conserve watersheds. By 1938 the total area was increased to 1,055,646 acres, or one-fourth of all the lands of the Territory, and 66 percent owned by the Territorial Government. By way of comparison, Puerto Rico has only 2 percent remaining of the original forests.

In 1933 it was the Territory's good fortune to secure the services of the Civilian Conservation Corps. It is hoped that this Federal aid will be continued as a permanent institution in the Territory. Over 2,000,000 trees were planted in 1936 on Government lands within the forest reserves. Trails, firebreaks, check dams and recreation



areas have been established or improved. Lots for summer use were opened up in Kauai in 1918. Tax exemption on privately owned land area of over 356,000 acres (34 percent) has fostered the protection of the forests. It has been proposed to buy up all such lands by progressive acquisition so eventually the Territory will have absolute control of all forests necessary to the protection of watershed areas.

*Operation.*—Direct expenditures for recreation by the Territory have ranged from \$153,812 in 1928 to \$20,131 in 1933 and \$45,120 in 1938.

The parks are largely operated and maintained by the several counties. Territorial recreational facilities include the Honolulu Fairgrounds Golf Course (Fair Commission) and War Memorial Park and Natatorium (Public Works Department), and Kaupo Park (old Hawaiian Village)—with little care and reported being destroyed by unreasoning picnickers; Coconut Grove Park near Kaunakakai, and Duncan Park at Hoolehua, Molokai (Hawaiian Homes Commission).

Expenditures for recreation in 1937 ranged from \$1.67 per capita by Honolulu City and County and an average of all four counties of \$1.25 per capita to \$0.11 per capita by the Territory (fiscal year 1938).

In general, the county governments have taken the initiative in providing public areas, through the Territorial Land Commissioner, through purchase or through gifts by residents. Acquisitions are not made, however, according to any master plan. Plantations and estates have added materially to recreational facilities. The sugar plantations alone in 1937 expended \$742,027 for recreation. The expansion in facilities in the Territory has come largely since 1920 when the number of recreational areas increased from 53 to 234 and the area from 121,503 to 168,613 acres.

Recreation in Hawaii is conducted through five major groups:

(a) The Federal Government:

1. Hawaii National Park (Maui and Hawaii.)
2. U. S. Army, U. S. Navy, and Marine Corps.
3. WPA and NYA.

(b) Territorial Government:

1. Department of Public Instruction.
2. National Guard armories.
3. Territorial golf course and natatorium.
4. Camp sites, picnic grounds; mountain cabins and trails (within forest reserves).

(c) City and county, and county governments.

(d) Plantations and business houses.

(e) Other private agencies (Y. M. C. A., Y. W. C. A., Boy and Girl Scouts, etc.).

Honolulu is reported to be spending one-third the amount spent annually by mainland cities of its size.

*Island Sports.*—Hawaii's principal forms of recreation consist of practically all games of the mainland, for young and old, including our national pastimes of baseball and football. Each year teams play mainland and Oriental teams. There are as yet no games with teams of the

Southern Hemisphere—Australia, New Zealand, Polynesia and a wealth of Pacific countries possibilities. Regatta day is celebrated each year by competitive races of crews from the different islands. Kamehameha Day, Lei Day, and recently Hoolaulea Day provide festive entertainment in terms of Hawaii's pageantry, Hawaiian flora, and Hawaii's all-around play closely akin to the western rodeo, New Orleans' Mardi Gras, and other regional sports. July Fourth, Thanksgiving, Christmas, and New Year's come in for sport in the usual American way.

There are hiking clubs. Many own week-end beach houses. Golf and tennis are important. Surfing and bathing are all-year-round sports and rapidly exceeding available developed facilities. Luaus—Hawaiian feasts—are very common and partake of the frivolity of sports.

*Tourist Bureau.*—A 10-million-dollar-per-year tourist business has developed in Hawaii over a span of less than 40 years. With agricultural first and Army-Navy expenditures second, the tourist business is now Hawaii's "Third Industry." Excellent ocean steamers, trans-Pacific "Clippers" and interisland steamers and planes of the most modern types make pleasant the transportation of visitors from the mainland and foreign countries. Modern hotels, apartments and cottages add to the convenience and pleasure of those who vacation in Hawaii. The Hawaii Tourist Bureau is actively interested in the development of recreational facilities which will make even more pleasant the vacations of its many visitors. A World's Fair in Honolulu in 1948 as the fiftieth anniversary celebration of Hawaii's annexation to the Union of States has been proposed.

*School Lands Survey.*—By act of the 1939 legislature, the Territorial Planning Board has been mandated to prepare a master plan of the present and future school land sites for guidance of the 1941 legislature. Studies of total area, playground area and capital outlay in each of 188 of Hawaii's public schools are under way. Consideration of recreational areas are included, and the United States Office of Education standards are 1 acre per 50 pupils for total area and 200 square feet per pupil, are being applied for determination of inadequacies for correction in the individual schools. Fortunately these two closely related functions are being investigated simultaneously and it is desired to present each separately and coordinated with the other as a component part of the legislature-mandated Territorial master plan.

*Park, Parkway and Recreational-Area Survey.*—In June 1936, Congress enacted a law, 49 Stat. 1894, authorizing a study of the park, parkway and recreational-area programs in the United States and providing for the cooperation of the National Park Service with the several States in undertaking a study to "provide data helpful in developing a plan for coordinated and adequate public park, parkway and recreational-area facilities for the people of the United States."

As an integral part of the United States, on recommenda-



Few persons think of Hawaii as a place for winter sports. This skiing party is on the slopes of Mauna Kea, the Territory's highest mountain (13,784 feet).  
(Hawaii Tourist Bureau Photo.)

Above: The famous Rainbow Falls are near Hilo on the Island of Hawaii.



Right: Many different racial backgrounds make up the population of Hawaii. Below: Snow capped Mauna Kea, Hawaii's loftiest mountain.  
(Hawaii Tourist Bureau Photos.)

Below: Outrigger canoes attract the interest of visitors to Waikiki Beach. Diamond Head appears in the distance.  
(Hawaii Tourist Bureau Photo.)







These scenes in Mammoth Cave National Park, Kentucky, indicate the variety of subterranean formations. *Upper left:* The Frozen Niagara at new cave entrance. *Upper right:* Jenny Lind sat in this chair when she visited the cave. *Below:* The Hippodrome at new cave entrance. (*National Park Service Photos.*)



tion of its Governor, the Honorable Joseph B. Poindexter, the Territory, through its legislature, took advantage of its first opportunity to participate in this national program. Because of the provisions of Act 207, S. L. 1937, Governor Poindexter assigned this work to the Territorial Planning Board. The 1939 session of the Territorial legislature appropriated the sum of \$6,000 to cooperate with the National Park Service in this study. On April 15, 1940, with the arrival of Merel Sager, park planner of the National Park Service, and the selection of Knute N. Vaksvik, planning engineer of the Territorial Planning Board, as supervisor of the Territorial Park Survey, the study was begun.

In the early stages of execution of our assignment we are particularly impressed with the unusual array of factors involved in a recreation study for the Territory of Hawaii.

As elsewhere in the United States, recreation resources and facilities have their local "slants" and influencing factors. However, in one respect they are those of the world over. In the words of our beloved William Cullen Bryant:

"To him who in the love of Nature holds communion  
With Her visible forms, She speaks a various language.  
For his gayer hours She has a voice of gladness  
And a smile and eloquence of beauty  
And She glides into his darker musings  
With a mild and healing sympathy  
That steals away their sharpness  
Ere he is aware. —————"

And that, too, is the acid-test factor of recreation in Hawaii Nei!

## CAVERN EXPLORATION AND DEVELOPMENT

by WILLIAM M. MCGILL, *Assistant State Geologist, Virginia Geological Survey,  
Charlottesville, Virginia*

Most of us possess a sufficiently vivid imagination and enough of the spirit of adventure to yearn for an opportunity to engage personally in some form of exploration. The belief prevails that the opportunity to engage in real exploration is, in these days, limited to those pursuing scientific research or to people of independent means who have personal interest in exploring or an insatiable curiosity for hunting for things, and sufficient leisure time to indulge in such an avocation on their own.

It is true that most fields of scientific and related exploration require years of training and experience, plus adequate financial backing, careful planning, and proper equipment. There is still one field of exploration, however, which any interested person, regardless of sex, creed, or age, can pursue on his or her own. This is the field of cave exploration.

Because of differences in type of kind and the varied natural features which they possess, caves offer an interesting and alluring field of exploration to the scientist, the historian, the artist, the teacher, the student and lover of nature, and to plain folks. History and tradition, as well as the annals of varied fields of science, are filled with fascinating accounts of the discovery and exploration of caves, and of the known, reported, and fancied use of caves from earliest time.

### *Human History in Caves*

Discoveries of historical and scientific importance have been made in caves in various parts of the world. The

earliest discoveries were made in western Europe, particularly in France and Spain, where systematic explorations of cavern areas were first undertaken. Later investigations revealed relics of ancient man and traces of his abode in caverns in Europe, Africa, and North and South America. Although the caverns of the Americas have not been as fully or systematically explored as have those of the Old World, important discoveries bearing on early man in the United States have been made in caves and cavern areas in New Mexico, Nebraska, Kentucky, Indiana, and Arizona in the last 10 or 12 years. Rich finds have been made also in ancient Pueblo ruins in Arizona, Colorado, New Mexico, and Utah.

There always has been a certain amount of mystery and fascination attached to the word "cave." Caves possess human appeal because of their striking natural features, which are obvious to the explorer or casual visitor. To the lover of nature in general and to the student of earth sciences in particular, they offer interesting examples of the slow and highly picturesque work of ground water and related geological and chemical processes and agents.

Chance has played a major role in the discovery of numerous caves and in important historical and scientific finds made in caves and cave areas. Full credit should be given the amateur explorers and scientists for a great many of these finds. In nearly every section of the world in which caves occur, the existence and location of many caves are known to local residents and groups, particularly boys and



young men, who at some time have at least partly explored them. In many instances, a spirit of adventure or inherent curiosity has been the incentive for such explorations.

Cave exploring clubs, composed of both scientists and laymen, were organized long ago in Europe and have played an important part in discoveries and investigations of caves and in furthering scientific explorations and studies. In comparatively recent years the formation of "speleological clubs" has gotten under way in the United States. Perhaps one of the most active such groups is the Speleological Society of the District of Columbia, organized by William J. Stephenson and a few of his "cave exploring" friends in the summer of 1938. This organization numbers among its 40-odd members several eminent scientists in varied fields, engineers, lawyers, geologists, clerks and office workers in various lines of occupation, college students, and owners or operators of several developed caves. Among its objectives are the exploration and mapping of newly discovered and partly known caves; study of the formations, geologic history, and underground waters; and the collection of information on plant and animal life and other scientific data. At present the society plans to explore only caves in Pennsylvania, Maryland, Virginia, and West Virginia, since the cave-bearing areas of those States are more readily accessible to its members, most of whom reside in the District of Columbia or nearby portions of Maryland and Virginia. The society hopes to promote the organization of affiliated local "cave study clubs" in other parts of the country and, by the mutual interchange of information and the establishment of a central collecting and distributing agency in Washington, to contribute to the literature on caves in the United States.

Among other organizations which have sponsored, or whose members have personally participated in, the exploration and scientific study of caves in the United States are the American Museum of Natural History and the Explorers Club of New York City and the National Museum and the Smithsonian Institution of Washington. The National Park Service and several State historical and scientific societies and bureaus have, during recent years, sponsored or conducted investigations in several local cave areas which have yielded, or promise to yield when completed, much data of interest and value.

#### *Exploitation of Caves*

Not all of us are possessed of a sufficiently strong inclination to undergo the rigors and hardships experienced in cave exploration. There are many who would like to visit a cave and see the interesting features and formations of which we have read or been told, but we prefer to have facilities and conveniences to which we have become accustomed. For these reasons, and because caves have a popular appeal, caves in many parts of the United States and in several foreign countries have been "opened up" and developed for exhibition to the public. Thus it is that visitors to many cave-bearing areas now have an opportunity

to visit "underground wonderlands" with little or no discomfort.

Instead of detracting from the appeal and natural or popular interest value, as might be supposed, the commercial development or "opening up" and preparing for public display of caves has generally enhanced their attractiveness and increased the impressiveness of their picturesque formations. The "bringing of light" to the underground wonderlands has been likened unto a miracle. Certain it is that the installation of modern lighting systems has made available to the visitor to these caves vistas and visions in such color, charm, and variety as would never have been seen or known.

In addition to offering the public new pleasures and recreational opportunities, the commercial development and public display of caves has tended to make us more cave conscious and thus aware of some of nature's long-hidden works of art. The great number of visitors to them indicates that these exploited marvels of nature possess a strong popular and educational appeal.

The statement has been made, "If you see one cave you have seen them all," meaning that all caves are similar. This is not true. Although many caves possess similar features and in manner of origin may be alike, nearly every cave has a definite character of its own. The inexperienced visitor may gain the impression that two or more caves in one cave area are quite similar, but to the lover of nature, the admirer of beauty, and to the more experienced cave visitor, each cave has some particular appeal and some distinguishing characteristic by which it differs from others. This is especially true of caves in different parts of the country and in areas of different geological environment.

That the National Park Service is keenly aware of the interest of the traveler in caves and is awake to the importance of preserving and protecting for recreational enjoyment and educational, historic, and scientific value some of these notable works of nature, is evidenced by the acquisition and development of such national parks as: Aeadia, Carlsbad Caverns, Crater Lake, Grand Canyon, Great Smokies, Kings Canyon, Mammoth Cave, Mesa Verde, Sequoia, and Wind Cave.

In the following national monuments there also are cave features: Arches, Bandelier, Cedar Breaks, Craters of the Moon, Dinosaur, Jewel Cave, Gila Cliff Dwellings, Lava Beds, Lehman Caves, Natural Bridges, Montezuma Castle, Oregon Caves, Rainbow Bridge, Shoshone Cavern, Timpanogos Cave, and Walnut Canyon.

State parks also come into the cave-attraction picture with Monte Sano in Alabama; Colossal Cave and Papago in Arizona; Devils Den in Arkansas; Point Lobos in California; Florida Caverns in Florida; Cave in Rock, Giant City and Mississippi Palisades in Illinois; Spring Mill in Indiana; Backbone, Bixby and Maquoketa Caves in Iowa; White-water in Minnesota; Alley Springs, Big Spring, Meramec, Roaring River, and Round Spring in Missouri; Morrison in Montana; Bottomless Lake in New Mexico; Adiron-

dack Forest Preserve, Burnham and John Boyd Thacher in New York; Turner Falls in Oklahoma; Devils Punch Bowl, Sea Lions Cave and Lava River Caves in Oregon; Colerain in Pennsylvania; Big Bend Longhorn Cavern and Mother Neff in Texas; Crawford and Dry Falls in Washington; and Peninsula in Wisconsin.

#### *Development and Exhibition*

In considering the public development and exhibition value of a cave, many factors have to be studied. Among the key factors generally used as guides in such considerations and particularly in the "opening-up" or preparation of a cave for public display are:

1. Location; geographic, geologic, and topographic.
2. Accessibility; via good all-weather highway; existing railway or other local transportation facilities.
3. Nature; type and extent of cave and length of tour routes which may be developed.
4. Main attraction features:
  - (a) Type, size, and extent of passages, corridors, chambers, etc.
  - (b) Decorative formations; stalactites, stalagmites, columns, flowstone, helictites, draperies, cave pearls, gypsum, or other flowers, and other kinds of deposits.
  - (c) Pits and domes.
  - (d) Underground lakes and streams.
  - (e) Cave life; kind, size, variety.
  - (f) Human fossils, artifacts, or other evidences of man's occupancy or use of cave.
  - (g) Fossils; animal, bird, fish, reptile, or other.
  - (h) Distinctive characteristics other than above.
5. Proximity to other commercially developed or publicly exhibited cave or caves, and main features or attractions of such.
6. Normal tourist travel and local traffic conditions in the vicinity.
7. Tourists accommodations in area.
8. Estimated cost of exploration, development and operation.

Space will not permit a detailed discussion of these various key factors, nor is it of particular interest to treat more fully of them in this article. Considerable thought, much exploratory work underground, the preparation of detailed sketches and maps, coordination of numerous details of

varied kinds, careful planning, and close adherence to a set of key factors are necessary in the planning, exploration, development, and preparation for public display of a cave.

A cave must have some outstanding feature or interest value to warrant its display to the public. In the development for display caution must be exercised in order that the cave be properly and satisfactorily developed and that the interest value be preserved and protected. Natural conditions should be preserved; artificiality in the final development should be rigorously avoided. The developed tour routes should be carefully planned and developed. Each should permit a complete picture of the portion or portions of the cave they traverse, but they should not be too long. Rest stops and seating facilities should be provided for the viewing of the better vistas. Adequate accommodations and facilities should be available for the comfort and convenience of the visitor.

Well-planned gravel or dirt walks should provide safe and reasonably comfortable passage through the developed parts of the cave. Changes in elevation of the trail should be effected by ramps wherever practicable. Elsewhere steps and stairways of stone, iron, or concrete may be used, but they should simulate natural conditions insofar as this is consistent with safety. All danger spots or trail endings should be indicated by guard rails or rock walls. Courteous and efficient guide service must be provided. A more detailed statement of policy regarding the preparation of a cave as a public exhibit will be found in *Geology Memorandum No. 2, Caves and Their Conservation*, issued by the National Park Service, United States Department of the Interior, March 1937. There should be a carefully prepared guide booklet on the cave, covering tour routes, features of interest and explanation thereof, and containing a sketch map of the cave. Names with real meanings should be given the various passages, rooms, features, and decorative formations.

A small museum might be made an interesting and instructive feature of the cave office or entrance building or installed in a large room in the cave proper. Such a display should not be simply a collection of curios but should be designed to tell the geologic and historic story of the cave. By this means the visitor's interest will be stimulated before his trip, his understanding of the cave will be clarified and a more permanent impression created.



# ORGANIZED CAMP AS ADJUNCT TO THE PUBLIC SCHOOLS

by WILLIS A. SUTTON, *Superintendent of Schools, Atlanta, Georgia, Past President,  
National Education Association*

FOR 25 years I have attended a private camp for boys and have been a regular visitor to a private camp for girls. During these 25 years I have seen marvelous transformation wrought in the dispositions, attitudes and even in the character of boys and girls by eight weeks spent in a well-organized summer camp. Splendid qualities as a cooperator in the home, fine attitudes as a public citizen, and the desirable social virtues seem to have been better inculcated in this well-organized summer camp of two months than oftentimes by a year of training in public or private schools.

The thought came to me, "What is our object in the public schools and in the training of our youth?" Immediately the response, "Better citizens, more efficient workers, stronger bodies, more alert minds, people more active in the interests of others." My mind instinctively inquired, "Have not these qualities been developed by the organized summer camp, and is it not true that in addition the mind has been quickened, appreciation and understanding of nature have been heightened, and physical skills in swimming, games, sports and other activities enhanced, all combining to make both mind and body more useful to others and more pleasure to the individual?"

"If this has been the accomplishment of a well-organized summer camp over a period of eight weeks; if these qualities have been acquired in a well-organized summer camp, why could not some of the techniques and some of the plans of this well-developed summer camp idea be applied to boys and girls in the public schools, not only during the summer but during the regular school year?" Again I asked myself the question, "Are not the values received from such activities just as helpful and possibly even more helpful than those received by being 'cooped up' within the narrow walls of a schoolroom, learning certain things out of books, or even engaging in the activities which distinguish a progressive school?" The answer being in the affirmative, I immediately set to work to see what could be accomplished.

Certainly we should not be unsocial enough to take just a few children out of school who might be able to pay for a camping experience and leave the others stigmatized by their poverty and deprived of the benefits of such an outing. I called into conference the principal and members of the Parent-Teacher Association of a progressive school. I asked if we could not work out a plan similar to this camp program. I suggested that we ask the parents of certain groups of children, by classes or by groups of classes, if they desired their children to have a camping experience, and if they would be willing to give a signed statement that

authorized attending camp for a period of a week or two weeks. I suggested that by all means we should take children by whole groups if possible. I found that if the Board of Education transported the children and provided certain types of equipment, furnished teachers and nurses and naturalists and some other expenses, and if we secured a wholesale rate from one of the camps which the government had erected for the recreation of the people, we could keep a child in camp for a period of eight days for \$5. If there were 30 children, then the expense to the children would be \$150. Would it not be a splendid thing for these children to work together, with their teacher, with groups, and with certain neighborhood organizations in raising this \$150? Would there not be certain very definite social values that would come out of this cooperative effort? At least, it seemed to me, worth the trying, and so in several schools we planned for the securing of the camp. We made a part of our social-science work, of our extra-curricula activities, and of our Parent Teacher Association program, the preparation for this type of camp. We went so far as to request that at least two parents attend the camp with a group of boys or girls.

Great was the stir as to what they would do at camp! Would they have lessons; would they be required to observe certain hours? Greater was the excitement and joy when they were told that regular lessons would be suspended, and since all the group would attend camp, no one would get behind anyone else; that we would spend our time in the study of flowers and trees, Indian lore, birds, animals, and in learning how to swim, how to canoe, how to paddle a boat, how to save life in the water; that we would provide entertainment for our groups at night, and that we would have many opportunities to work out a paper or magazine; that our kodaks should be carried; pictures taken and slides made from the pictures when we returned. Many really rejoiced to know that they could study land, erosion, restoration of land; what farmers were doing in the community and how country people lived. Each group was allowed to make out its program in collaboration with the children, teachers, mothers, and the fathers and the community in general.

Members of my staff and I visited what was known at that time as the Hard Labor Creek Recreational Area, a territory of some six thousand acres of badly eroded land which had been purchased by the Government and had been turned into a recreation center for the people. A lake several miles in length, with a beautiful water front,

had been provided. Kitchens, cabins for spending the night, recreation hall, and cafeteria had all been most painstakingly planned and thoroughly constructed and were in readiness for the children. In order that the entire community might enter into the project, the Optimist Club, of which our superintendent in charge of elementary schools is a member, asked that they might take part by paying whatever fee the Government required for the use of these properties. Here another great agency was brought into the picture.

Group after group of children went. Some groups were as large as 200, others as small as 40, and spent a week or two weeks during the regular school season at camp. Well I remember the first group to leave. They were the children of the Whiteford School. The organization had been late in being completed; the camp had been provided for the month of October, and it was getting late in the month. But since we live in the South, camping is open to us the greater part of the year. It was a rainy, cool day. The mothers had assembled with the food which they were to help carry to the camp; the children were there with their packs, but the weather was extremely bad. There again we had a fine exhibition of the value of camping in developing fine qualities in the boys and girls. We must learn how to endure hardships, how to take the weather. One of the things that we were trying to do was to become good soldiers, to know how to stand the rough and ready propositions of life, and the difficulties which we met. How readily the children imbibed this ideal! A nurse from our nursing staff went with us; a physician was in easy call; teachers helped to plan the program; children met in groups to work out the details; some helped serve in the cafeterias, in the preparation of the food, and in the cooking of the food. They had a regular staff, but the children helped particularly in caring for the cleanliness of the premises.

The effect on the life of the children was electrical. Their knowledge increased; their desire to cooperate with both parents and children became one of the dominant factors of their lives. The idea of preparing a camp, or inspection of their rooms or tents, and their premises, the idea of cleanliness; the understanding of the balance in

nature between plant and animal life; the games, the sports, the pleasure, the conquering of water, the learning to swim; the understanding of the trees and plants, the study of Indian lore, the publication of the newspaper, the making of pictures, the use of negatives in preparing slides—all took on a new interest in a camp setting. Food tasted better, good habits of health and hygiene were more easily carried out, and refreshing sleep seemed to come to weary eyes and to bring such rest that bodies were rejuvenated in the morning.

The cooperation of the governmental agencies was all that could be desired, and the school camp in school time was a tremendous success.

If such a camp program could be carried out in connection with the public schools—if it could be of such tremendous value during the school term—why could we not use the same facilities that the Government has provided for underprivileged boys and girls during the summer? Why could not an intensive program of camping be even more successful in happy, warm summer months than in the more difficult months of fall and spring? So we leased the camp with money furnished us by the Optimist Club, and we opened it to groups of happy boys and girls, and on two particular seasons the Optimist Club itself provided the funds for the underprivileged boys to attend camp for a period of 12 to 14 days. The records of boys during the year were studied in order to select the proper campers according to their behavior and attitudes. The fact that they had not been in the juvenile court, their records in Sunday School, all of these things would be regarded, and this information was given to the boys 8 and 10 and 12 months before the camping period. This proved to be a great incentive to fine conduct, and the best behaved students who attended the camp at all were these hosts of underprivileged boys that we cared for in the summer.

What has been the effect? Better students, better prepared boys—physically and mentally—less delinquency, increased interest in regular subjects, social values that never could have been attained in any other way, and children happier and better citizens. On the whole, the organized camp as an adjunct to a public school system has proved a tremendous success.



# STATE PARK ADMINISTRATIVE AGENCIES

- ALABAMA: Department of Conservation, Albert W. Gill, acting director; W. G. Lunsford, chief, Division of State Parks, Monuments, and Historical Sites, Montgomery.
- ARIZONA: University of Arizona, Alfred Atkinson, president, Tucsos (Saguaro Forest State Park). State Game and Fish Commission, Charles P. Beach, chairman; K. C. Karpehner, State Game Warden, Phoenix.
- ARKANSAS: State Park Commission, Dr. T. W. Hardison, chairman; S. G. Davies, Director of State Parks, State Capitol, Little Rock.
- CALIFORNIA: Department of Natural Resources, Richard Saehse, director, Sacramento; Darwin William Tate, chief, Division of Parks, 417 Montgomery St., San Francisco.
- COLORADO: State Park Board, State Capitol, Denver.
- CONNECTICUT: State Park and Forest Commission, Arthur V. Parker, general superintendent of parks, Hartford.
- DELAWARE: State Park Commission, Mrs. Henry Thompson, chairman, Dover. State Forestry Commission, W. S. Taber, State forester, Dover.
- FLORIDA: Florida Forest and Park Service, H. J. Malsberger, State forester; Lewis G. Seoggin, director of State parks, P. O. Box 1200, Tallahassee.
- GEORGIA: Department of Natural Resources, Zaek D. Cravey, commissioner; R. F. Bureh, Jr., director, Division of State Parks, Historic Sites, and Monuments, Atlanta.
- IDAHO: Department of Public Works, Allen C. Merritt, commissioner, Boise.
- ILLINOIS: Department of Public Works and Buildings, Walter A. Rosenfield, director; Arnold Kugler, acting superintendent, Division of Parks, Springfield.
- INDIANA: Department of Conservation, Frank N. Wallace, acting director; Charles R. DeTurk, director, Division of State Parks, Lands, and Waters, Indianapolis.
- IOWA: State Conservation Commission, F. T. Schwob, director; V. W. Fliekinger, chief, Division of Lands and Waters, Des Moines.
- KANSAS: Forestry, Fish and Game Commission, Guy D. Josseland, director, Pratt.
- KENTUCKY: Department of Conservation, Mrs. Robert H. Vaughan, director, Division of Parks, Frankfort.
- LOUISIANA: Department of Conservation, W. H. Hodges, Jr., director; Carroll L. Wood, Jr., director, State Parks Division, 126 Civil Courts Building, New Orleans.
- MAINE: State Park Commission, H. E. Kimball, secretary, Augusta.
- MARYLAND: Department of Forestry, F. W. Besley, State forester; Karl E. Pfeiffer, director, Division of State Parks, 1411 Fidelity Building, Baltimore.
- MASSACHUSETTS: Department of Conservation, Raymond J. Kenney, commissioner; Edgar Gillett, director, Division of Parks and Recreation, 20 Somerset Street, Boston.
- Metropolitan District Commission, Nelson Curtis, secretary, 20 Somerset Street, Boston. Deer Hill State Reservation Commission, Hiram H. Brownell, chairman. Mount Everett State Reservation Commission, George T. Hamilton, secretary, 29 Elliott Street, Springfield. Mount Greylock State Reservation Commission, Arthur M. Robinson, secretary, Pittsfield. Mount Sugar Loaf State Reservation Commission, Samuel U. Streeter, chairman, Greenfield. Mount Tom State Reservation Commission, Charles W. Bray, chairman, Chicopee Falls. Purgatory Chasm State Reservation Commission, Herbert L. Ray, superintendent, Sutton. Wachusett Mountain State Reservation Commission, Charles D. Briggs, secretary; Everett W. Needham, superintendent, Princeton. Walden Pond State Reservation Commission, Nathaniel I. Bowditch, chairman, Cambridge.
- MICHIGAN: Department of Conservation, P. J. Hoffmaster, director; L. N. Jones, chief, Division of Parks, Lansing. C. R. Ladd, superintendent, Mackinac Island State Park, Mackinac Island.
- MINNESOTA: Department of Conservation, Dr. William L. Strunk, commissioner; Harold W. Lathrop, director, Division of State Parks, St. Paul.
- MISSOURI: State Park Board, Irwin T. Bode, director, Jefferson City.
- MISSISSIPPI: State Forestry Commission, Fred B. Merrill, State forester; State Board of Park Supervisors, J. H. Fortenberry, director of parks, Jackson.
- MONTANA: State Park Commission, Rutledge Parker, State forester and State park director, Missoula.
- NEBRASKA: State Game, Forestation and Parks Commission, W. H. Lytle, acting secretary, Lincoln.
- NEVADA: State Park Commission, R. C. West, chairman, Reno; Robert A. Allen, superintendent of parks, Carson City.
- NEW HAMPSHIRE: State Forestry and Recreation Commission, John H. Foster, State forester; Russell B. Tobey, assistant in charge of State parks, Concord.
- NEW JERSEY: Department of Conservation and Development, C. P. Wilber, director and chief, Division of Forests and Parks, Trenton. High Point Park Commission, John J. Gibbons, executive secretary, Sussex.
- NEW MEXICO: State Park Commission, Burton G. Dwyer, secretary; C. E. Hollied, chairman and superintendent of State parks, Box 448, Santa Fe.
- NEW YORK: State Conservation Department, Lithgow Osborne, commissioner; James F. Evans, director of parks and secretary, State Council of Parks; William G. Howard, director, Division of Lands and Forests, Albany. Allegany State Park Commission, M. E. Mereer, executive secretary, Red House. American Scenic and Historic Preservation Society, secretary, 287 Convent Ave-

- nue, New York. Central New York State Parks Commission, Leonard L. Huttleston, executive secretary, Binghamton. Finger Lakes State Park Commission, Carl Crandall, secretary-engineer, Ithaca. Genesee State Park Commission, Chas. A. Van Arsdale, executive secretary, Castile. Long Island State Park Commission, Arthur E. Howland, chief engineer-general manager, Babylon, Long Island. Niagara Frontier State Park Commission, A. B. Cole, secretary, Niagara Falls. Palisades Interstate Park Commission, A. K. Morgan, chief engineer-general manager; Frederick C. Sutro, executive director, State Office Building, New York. Taconic State Park Commission, Paul T. Winslow, executive secretary, Staatsburg. Thousand Islands State Park Commission, Paul J. Cunningham, executive secretary, 104 Stone Street, Watertown. Westchester County Park Commission, James W. Howorth, secretary; George S. Haight, general superintendent, White Plains.
- NORTH CAROLINA:** Department of Conservation and Development, R. Bruce Etheridge, director; J. S. Homes, State forester; Thomas W. Morse, superintendent of State parks, Box 231, Raleigh.
- NORTH DAKOTA:** State Parks Committee of State Historical Society, Russell Reid, secretary, Bismarck.
- OHIO:** Division of Conservation and Natural Resources, Don Waters, commissioner; W. R. Wheelock, chief, Bureau of Inland Lakes and Parks, Columbus. Division of Forestry, O. A. Alderman, State forester, Wooster. State Archaeological and Historical Society, Curator of State Memorials, Columbus. Akron Metropolitan Park Board, H. S. Wagner, director-secretary, Courthouse, Akron. (Virginia Kendall State Park.) Defiance County Metropolitan Park Board, County courthouse, Defiance. (Independance State Park.)
- OKLAHOMA:** Oklahoma Planning and Resources Board, Glen R. Durrell, State Forester and Director, Division of Forestry, Oklahoma City, Campbell Cameron, Supervisor of State Parks, Division of State Parks.
- OREGON:** State Highway Commission, Samuel H. Boardman, Superintendent of State Parks, Salem.
- PENNSYLVANIA:** Department of Forests and Waters, G. Albert Stewart, secretary; John R. Williams, chief, Bureau of Parks, Harrisburg.
- RHODE ISLAND:** Department of Agriculture and Conservation, Dr. Raymond G. Bressler, director; Ernest K. Thomas, administrator, Office of Forests and Parks, Goddard Memorial Park, East Greenwich.
- SOUTH CAROLINA:** State Forestry Commission, H. A. Smith, State forester; R. A. Walker, in charge, Division of State Parks, Columbia.
- SOUTH DAKOTA:** South Dakota Park Board, E. B. Adams, chairman, Hot Springs; C. T. Bates, superintendent, Hermosa.
- TENNESSEE:** Department of Conservation, J. Charles Poc, commissioner; William M. Hay, acting director, Division of State Parks, Nashville.
- TEXAS:** State Parks Board, Wendell Mayes, chairman, Brownwood; Frank D. Quinn, executive secretary Austin.
- UTAH:** State Board of Park Commissioners, Hon. Herbert B. Maw, Governor and ex-officio chairman; Tracy R. Welling, secretary, Salt Lake City.
- VERMONT:** State Board of Conservation and Development, Perry H. Merrill, State forester; Robert G. Simon, assistant in charge, State Parks and Recreation, Montpelier.
- VIRGINIA:** Virginia Conservation Commission, N. Clarence Smith, chairman; Randolph Odell, director, Division of Parks, Richmond.
- WASHINGTON:** State Parks Committee, W. G. Weigle, Superintendent of State Parks, 305 Lowman Building, Seattle.
- WEST VIRGINIA:** State Conservation Commission, T. D. Gray, director; Linn Wilson, chief, Division of Parks, Charleston.
- WISCONSIN:** State Conservation Commission, H. W. MacKenzie, director; C. L. Harrington, Superintendent of Forests and Parks, Madison.
- WYOMING:** State Park Commission, Winifred S. Kienzle, Deputy Land Commissioner, Cheyenne.



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